NEMAHA NATURAL RESOURCES DISTRICT MANAGEMENT AREA RULES AND REGULATIONS FOR GROUNDWATER QUANTITY MANAGEMENT AREAS

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CHAPTER 1 – AUTHORITY FOR ISSUING THESE RULES AND REGULATIONS

1.1. Water Management Plan – On January 1, 1986 the District's first Water Management Plan went into effect pursuant to the passage of Nebraska Revised Statute Chapter 46, Article 6, Section 73.01 enacted by the 88th Nebraska Legislature.

1.2. Groundwater Management Plan – On November 1, 1995 the District updated the Water Management Plan of 1986 with the Groundwater Management Plan pursuant to the passage of Nebraska Revised Statute Chapter 46, Article 6, Section 73.13 enacted by the 92nd Nebraska Legislature. The Statute required Natural Resources Districts to amend their groundwater management plans to identify, manage and establish goals concerning groundwater quality.

1.3. Groundwater Management Plan Rules and Regulations – On August 11, 1999 updated Groundwater Management Plan Rules and Regulations were adopted placing the entire District into a Phase I Groundwater Management Area due to elevated nitrates. The Phase I designation also required obtaining a permit for any wells designed and constructed to pump greater than 50 gallons per minute and allowing the District to collect a water sample to establish a benchmark nitrate level.

1.4. Phase II Groundwater Quality Management Area Designated – On February 25th, 2003, due to elevated nitrate concentrations in groundwater a 73 square mile area was designated a Phase II Groundwater Quality Management Area as set forth by the triggering mechanism established within the District's Groundwater Management Plan Rules and Regulations.

1.5. Groundwater Management Plan Rules and Regulations – On May 15th, 2006 new Groundwater Management Plan Rules and Regulations were adopted placing a two-year temporary closure to the issuance of well permits for wells designed and constructed to pump greater than 50 gallons per minute District-wide. The two-year closure allowed the District time to update the Groundwater Management Plan to address groundwater quantity issues and develop Rules and Regulations accordingly.

1.6. Groundwater Management Plan Rules and Regulations – On May 15th, 2008 the expiration date to the temporary closure to the issuance of well permits for wells designed and constructed to pump greater than 50 gallons per minute was extended to October 15th, 2008.

1.7. Groundwater Management Plan Rules and Regulations – On October 9th, 2008 the District Board of Directors approved a resolution placing an immediate temporary 180 day stay on the construction of any new water well designed to pump greater than 50 gallons per minute.

1.8. Groundwater Management Plan Rules and Regulations – On December 11th, 2008 the District Board of Directors adopted the revisions to the District's Groundwater Management Plan Rules and Regulations and issued an administrative order establishing

the effective date of the rules as February 1st, 2009. The Board also approved a termination date of February 1st, 2009 for the temporary 180 day stay on the construction of new water wells.

1.9. Groundwater Management Plan Rules and Regulations – On January 10th, 2013 the District Board of Directors approved a resolution placing an immediate temporary 180 day stay on the construction of any new water well designed to pump greater than 50 gallons per minute. On April 11th, 2013 the District Board of Directors adopted the revisions to the District's Groundwater Management Plan Rules and Regulations and issued an administrative order establishing the effective date of the rules as May 9th, 2013. The Board also approved a termination date of May 9th, 2013 for the temporary 180 day stay on the construction of new water wells.

1.10. Groundwater Management Plan Rules & Regulations – On November 13th, 2014 the District Board of Directors adopted the revisions to the District's Groundwater Management Plan Rules and Regulations and issued an administrative order establishing the effective date of the rules as December 15th, 2014. Specifically, the updated rules and regulations addressed minimum well spacing for new high capacity water from existing water wells as well as updated definitions, increased late well permit fee, allocation amounts, amount of transfer acres allowable, minimum well score, well density calculation criteria, points for irrigation methods and requiring a minimum aquifer thickness for well permits.

1.11. Groundwater Management Plan Rules & Regulations – On October 8th, 2015, the District Board of Directors adopted a resolution increasing the well permit ranking system methodology minimum approval score to 231 points for any well permit application received, excluding public water supply wells, located east of US Highway 75 and north of 705 Road in Richardson County.

1.12. Groundwater Management Plan Rules & Regulations – On September 8th, 2016, the District Board of Directors approved a motion to require 300 points as the minimum score for well permit approval using the well permit ranking system methodology for any well permit application received, excluding public water supply wells, located in that area of Richardson County which is east of Highway 75 and north of 705 Road.

CHAPTER 2 – APPLICATION OF THESE RULES AND REGULATIONS

2.1. Rules and Regulations for GWQMA – Chapters 3 through 20 of these rules and regulations shall apply to District determined Groundwater Quantity Management Areas.

CHAPTER 3 – EFFECTIVE DATE OF THESE RULES AND REGULATIONS

3.1. Effective date – These rules and regulations shall become effective on March 13th, 2020 and shall remain in full force and effect until revised, repealed, amended or superseded.

3.2. Previous rules and regulations superseded – All previous Groundwater Quantity Management Area Rules and Regulations are hereby superseded.

CHAPTER 4 – DEFINITIONS THAT APPLY TO THESE RULES AND REGULATIONS

4.1. Abandoned water well – Abandoned water well shall mean any water well (1) the use of which has been accomplished or permanently discontinued, (2) which has been decommissioned as described in the rules and regulations of the Department of Health and Human Services Regulation and Licensure, and (3) for which the notice of abandonment required by Neb Rev. Stat. §46-602(2) has been filed with the Department of Natural Resources by the licensed water well contractor or pump installation contractor who decommissioned the water well or by the water well owner if the owner decommissioned the water well.

4.2. Acre inch – Acre inch shall mean the amount of water necessary to cover one (1) surface acre of land to a depth of one (1) inch.

4.2.1. For the purposes of these rules and regulations one (1) acre inch is equal to twenty-seven thousand one hundred fifty-four (27,154) gallons.

4.3. Active well permit – Active well permit shall be defined as a well permit application that has been approved by the NRD Board of Directors that has not expired, been canceled or withdrawn and the proposed construction of the well has not been completed.

4.4. Allocation – Allocation shall mean the apportioning of groundwater.

4.4.1. As related to water use for irrigation purposes – the allotment of a specified total number of acre-inches of irrigation water per irrigated acre per year or an average number of acre-inches of irrigation water per irrigated acre over a groundwater use period as defined by Chapter 4.23.

4.5. Aquifer – Aquifer shall mean a geological formation, group of formations, or part of a formation having pores or open spaces that contains enough saturated permeable material capable of yielding a significant quantity of water to satisfy a particular demand.

4.6. Aquifer region – Aquifer region shall mean areas of the District as identified in Chapter 18 as paleovalley alluvial, Big Nemaha alluvial, Missouri River alluvial, shallow or bedrock aquifers

4.7. Board or Board of Directors – Board or Board of Directors shall mean the Board of Directors of the Nemaha Natural Resources District acting in its official capacity.

4.8. Certified groundwater use acre – Certified groundwater use acre shall mean a groundwater use acre certified by the Board for the application of groundwater pursuant to these rules and regulations.

4.9. Commercial/Industrial water well – Commercial/Industrial water well shall mean a water

well that is designed and constructed to supply groundwater for manufacturing, cooling, heating, sanitation and other beneficial uses.

4.10. Confined aquifer – Confined aquifer shall mean groundwater that is confined under pressure greater than atmospheric by overlying, relatively impermeable strata. Confined aquifers are also known as artesian or pressure aquifers.

4.11. Consumptive use – Consumptive use shall mean the amount of groundwater this is consumed under appropriate and reasonably efficient practices to accomplish without waste the purposes for which the appropriation or other legally permitted use is lawfully made.

4.12. Decommission – Decommission shall mean the act of filling, sealing and plugging of a water well cavity in accordance with the rules and regulations adopted pursuant to the Nebraska Water Well Standards and Contractors' Licensing Act.

4.13. Department – Department shall mean the Nebraska Department of Natural Resources.

4.14. District – District shall mean the Nemaha Natural Resources District, or the staff or others designated by the Board of Directors to carry out these rules and regulations.

4.15. District groundwater level – District groundwater level shall mean the average level of the surface of the groundwater table as determined in accordance with Chapter 9 and 10 of these rules and regulations.

4.16. Flowmeter – Flowmeter or meter shall mean a device of type and design approved by the District and installed in connection with the use of a groundwater well that, when properly installed, measures the total quantity and rate of groundwater withdrawn.

4.17. Government survey section – Government survey section shall mean a section of land approximately one (1) square mile in size as defined by the United States Government Department of Interior Bureau of Land Management Public Land Survey System (PLSS) of townships, ranges, sections, quarter sections, etc.

4.18. Groundwater – Groundwater shall mean water that occurs, moves, seeps, filters or percolates through the ground under the surface of the land.

4.19. Groundwater Quantity Management Area Phase I – Groundwater Quantity Management Area (GWQMA) Phase I shall mean all areas of the District designated for Phase I management and regulation activities related to groundwater quantity.

4.19.1. GWQMA Phase I includes all areas of the Nemaha Natural Resources District that are not designated as Phase II or Phase III GWQMAs.

4.19.2. Map showing the geographic area and the legal description of the District's GWQMA are attached hereto as Appendix A and B respectively and incorporated herein by reference.

4.20. Groundwater Quantity Management Area Phase II – Groundwater Quantity Management Area (GWQMA) Phase II shall mean an area designated for Phase II management and regulation activities related to groundwater quantity.

4.20.1. GWQMA Phase II includes all management and regulation activities of Phase I GWQMAs.

4.20.2. GWQMA Phase II includes only portions of the Nemaha Natural Resources District as designated.

4.21. Groundwater Quantity Management Area Phase III – Groundwater Quantity Management Area (GWQMA) Phase III shall mean an area designated for Phase III management and regulation activities related to groundwater quantity.

4.21.1. GWQMA Phase III includes all management and regulation activities of Phase I and Phase II GWQMAs.

4.21.2. GWQMA Phase III includes only portions of the Nemaha Natural Resources District as designated.

4.22. Groundwater use acre – Groundwater use acre shall mean an acre of land that a groundwater user wants to apply groundwater to, pursuant to these rules and regulations.

4.23. Groundwater use period – Groundwater use period shall mean a period of three (3) consecutive calendar years designated by the Board for which an allocation is set.

4.23.1. The first groundwater use period shall begin on the effective date of Chapters 15 through 17 of these rules and regulations.

4.24. Groundwater user – Groundwater user shall mean a person or entity, who at any time, extracts, withdraws or confines groundwater for any use by him or herself or allows such use by other persons at a rate greater than fifty (50) gallons per minute. If the landowner and operator is not the same person, the term "groundwater user" shall mean both the landowner and the operator.

4.24.1. Agricultural user shall mean a groundwater user that uses groundwater for the irrigation of crop land that requires the application of groundwater to the surface of the land.

4.24.2. Municipal user shall mean a groundwater user that is an incorporated city or village, rural water district or sanitary improvement district that withdraws groundwater from a water well to serve its customers for domestic purposes as it relates to human needs of health, fire control and sanitation.

4.24.3. Other user shall mean a groundwater user that uses groundwater for purposes other than those described in the definitions of agricultural and municipal users for purposes such as recreation, wildlife, wetlands, lake supply, fountains, geothermal and vapor monitoring.

4.24.3.1. Other user shall include a customer of a municipal user that uses groundwater for commercial, industrial or manufacturing purpose.

4.25. High capacity well – High capacity well shall refer to any water well designed and constructed to pump greater than 50 gallons per minute.

4.26. Historically irrigated acres – Historically irrigated acres shall mean any acre of land watered for the purposes of agricultural irrigation from a registered irrigation water well(s) or a Nebraska Department of Natural Resources permitted surface water appropriation that:
4.26.1. Is classified as irrigated land by the local County Assessor; or
4.26.2. For acres irrigated with surface water, the acres must also have a valid associated appropriation from the Department for beneficial use under Neb. Rev. Stat. §46-229.

4.27. Hydrologically connected area – Hydrologically connected area means the area delineated by the Department pursuant to Neb. Rev. Stat. § 46-713(1)(a)(ii). As used herein, Hydrologically Connected Area refers only to that area delineated by the Department within the District, unless specifically stated otherwise.

4.28. Illegal water well – Illegal water well shall mean
4.28.1. A water well operated or constructed without, or in violation of, a permit required by these rules and regulations or by the Nebraska Ground Water Management and Protection Act or
4.28.2. A water well that is not properly registered in accordance with the provisions of Neb. Rev. Stat. § 46-602 to § 46-604, or
4.28.3. A water well constructed or operated in violation of the Water Well Standards and Contractor Licensing Act or
4.28.4. A replacement water well constructed or operated in the place of a water well that has not been properly decommissioned in violation of the Water Well Standards and Contractor's Licensing Act or
4.28.5. A water well not in compliance with any other applicable laws of the State of Nebraska or with any provisions of these rules and regulations.

4.29. Irrigated acre – Irrigated acre shall mean an acre of land that is capable of being supplied with groundwater and/or surface water through irrigation works, mechanisms, or facilities for the purpose of watering crops.

4.30. Management area – Management area shall mean a geographic area designated by the Board of Directors.

4.31. Marginal aquifer – Marginal aquifer shall mean any type aquifer where the saturated thickness of the principle aquifer is less than 10 feet and has a calculated effective transmissivity of less than 10,000 gallons per day per foot.

4.32. Monitoring well – Monitoring well shall mean a water well that is designed and constructed to provide the District ongoing hydrologic and groundwater quality information. A monitoring well may have a permanent pump installed to withdraw groundwater samples for analysis but is not intended for consumptive use.

4.33. Nitrogen fertilizer – Nitrogen fertilizer shall mean a chemical compound in which the percentage of nitrogen is greater than the percentage of any other nutrient in the

compound or, when applied, results in an average application rate of more than twenty (20) pounds of nitrogen per acre over the field to which it is being applied.

4.34. Nonpoint source – Nonpoint source shall mean any source of pollution resulting from the dissolution and disbursement of widespread, relatively uniform contaminants from a nonspecific origin.

4.35. Observation well – Observation well shall mean a water well monitored by the District or other public agency to measure fluctuations in the static water level of groundwater within an aquifer.

4.36. Operator – Operator shall mean a person, partnership, association, corporation, municipality or other entity which operates irrigated or dryland properties to produce agricultural, horticultural, silvicultural, nursery products or aquaculture.

4.37. Other water well – Other water well shall mean a water well that is designed and constructed to supply groundwater for purposes such as recreation, wildlife, wetlands, lake supply, fountains, geothermal and vapor monitoring.

4.38. Parcel of land – Parcel of land or parcel shall mean an area of land as defined by distinct boundaries.

4.39. Permit – Permit shall mean a document obtained, in accordance with the Nebraska Groundwater Management and Protection Act and these rules and regulations, authorizing the construction or modification of a water well or its use.

4.39.1. A permit may be issued for construction or modification of a water well for which a permit was not previously issued.

4.39.2. A permit may be issued for construction, modification or increased groundwater withdrawal from a water well as provided in Chapter 5.2.

4.39.3. A Late permit may be issued when a water well was illegally constructed or modified without first receiving a permit as provided in Chapter 5.2.4.

4.40. Permit holder – Permit holder shall mean a person that has been issued a permit in accordance with these rules and regulations.

4.41. Person – Person shall mean a natural person, personal representative, trustee, guardian, conservator, partnership, association, corporation, municipality, irrigation district, agency or political subdivision of the State of Nebraska, or a department, agency or bureau of the United States.

4.42. Pit – Pit shall mean any excavation made for any purpose if groundwater flows into the excavation under natural pressure. A pit becomes a water well when a pump is installed in the pit in order to withdraw water from the pit to irrigate a land surface greater than two (2) acres.

4.43. Public water supply well – Public water supply well shall mean a water well that supplies

or intends to supply water to inhabitants of cities, villages, or rural areas for domestic or municipal purposes, has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days per year and is supplied by a city, village, municipal corporation, metropolitan utilities district, rural water district, natural resources district, irrigation district, reclamation district or sanitary improvement district.

4.44. Registered well – Registered well shall mean a water well that has been registered with the Department by the well driller or owner.

4.45. Replacement well – Replacement well shall mean a water well which, if the purpose is for irrigation, delivers water to the same tract of land served by the original water well and is (a) constructed to provide water for the same purpose as the original water well; (b) operating in accordance with any applicable permit from the Department and any applicable rules and regulations of the District; (c) such replacement well is not designed or constructed to pump more water than the well it replaces; (d) such replacement well irrigates the same number of acres; (e)(i) replaces a decommissioned water well within one hundred eighty (180) days after the decommissioning of the original water well; (ii) replaces a water well that has not been decommissioned but will not be used after construction of the new water well and the original water well will be decommissioned within one hundred eighty (180) days after such construction, except that in the case of a municipal water well, the original municipal water well may be used after construction of the new water well but shall be decommissioned within one year after completion of the replacement water well; or (iii) the original water well will continue to be used but will be modified and equipped within one hundred eighty (180) days after such construction of the replacement water well to pump fifty (50) gallons per minute or less and will be used only for range livestock, monitoring, observation, or any other non-consumptive or de minimis use approved by the District.

4.46. Saturated thickness – Saturated thickness shall mean the vertical height of a hydrogeologically defined aquifer unit in which the pore spaces are 100% saturated with water. For unconfined, unconsolidated aquifers, the saturated thickness is equal to the difference in elevation between the bedrock surface or underlying impermeable layer and the water table.

4.47. Static Water Level (SWL) – Static water level shall mean the level at which water stands in a water well under atmospheric pressure and no water is being removed from the aquifer. SWL is expressed as the distance from the ground surface or measuring point near the ground surface to the water level in the well.

4.48. Testhole – Testhole shall mean a hole or shaft, usually vertical, excavated in the earth for subsurface exploration to determine and record or log the depth to water, and the depth, color, character, thickness, size of material of the various geologic formations encountered.

4.49. Test Well – a test well shall mean a temporary water well that is constructed and pumped for the purpose of determining the capacity at which a well can be pumped, the amount of

drawdown that occurs when a well is pumped and the rate of recovery of the groundwater after pumping ceases.

4.50. Thickness of Principle Aquifer Map - Thickness of Principle Aquifer Map shall mean the Nebraska Department of Environmental Control and the University of Nebraska – Conservation Survey Division – map titled "Thickness of Principle Aquifer, 1979, Lincoln and Nebraska City Quadrangle, Nebraska."

4.50.1. The aquifer thickness was determined by superimposing maps showing the configuration of the base of the principal aquifer and configuration of the water table. The difference between the two maps and well data from testholes and registered wells was used to derive contour lines of equal thickness. The principal aquifer is composed mostly of unconsolidated deposits of fine-grained material, primarily glacial till of the Quaternary age.

4.50.2. Digitized from 1980 USGS 1x2 degree quadrangle paper maps, the map contains a series of contour lines illustrating the estimated thickness of the saturated sediments. Areas where the principal aquifer is shown to be 'absent or very thin' consist of impermeable rock or clay.

4.50.3. The map is hereby adopted by reference.

4.51. Unconfined aquifer – Unconfined aquifer shall mean groundwater that is under the pressure exerted by the overlying groundwater and atmospheric pressure.

4.52. Variance – Variance shall mean (a) the approval to act in a manner contrary to the existing rules or regulations of the District whose rule or regulation is otherwise applicable, (b) an approval to deviate from restrictions imposed under a determination by the Department that a river basin, sub basin, or reach has become fully or over appropriated.

4.53. Water Well or Well – Water well or well shall mean (a) any artificial opening or excavation made in the ground that is drilled, cored, bored, washed, driven, dug, jetted or otherwise constructed for the purpose of exploring for groundwater, monitoring groundwater, utilizing the geothermal properties of the ground, obtaining hydrogeologic information, or extracting water from or injecting fluid as defined in Neb. Rev. Stat. § 81-1502 into an underground water reservoir. (b) Water well includes any excavation made for any purpose if groundwater flows into the excavation under natural pressure and a pump or other device is placed in the excavation for the purpose of withdrawing water from the excavation for irrigation. For such excavations, construction means placing a pump or other device into the excavation for the purpose of withdrawing water for irrigation, and the legal location of the well is the location of the pump itself. (c) Water well shall not include (i) any excavation made for obtaining or prospecting for oil or natural gas or for inserting media to repressure oil or natural gas bearing formations regulated by the Nebraska Oil and Gas Conservation Commission or (ii) any structure requiring a permit by the Department of Natural Resources used to exercise a surface water appropriation. (d) The terms "Water Well" and "Well" are used in these Rules, and the definition for both terms is identical.

4.54. Year – Year shall mean a calendar year beginning January 1st and ending December 31st.

CHAPTER 5 – WATER WELL PERMITS

5.1. Construction, decommissioning and temporary capping of water wells – Any person that owns or controls land upon which the construction, decommissioning or temporary capping of a water well is to be accomplished, shall accomplish such tasks in accordance with the Water Well Standards and Contractor Licensing Act and the regulations adopted pursuant thereto.

5.2. When a permit is required – Any person who intends to construct any new or replacement water well(s) that fall within the following categories on land which he or she owns or controls within the District shall, before commencing such activity, apply for a permit from the District on forms provided by the District and receive approval from the District:

5.2.1. Any water well designed and constructed or modified to pump greater than fifty (50) gallons per minute.

5.2.2. Any water well designed and constructed to pump fifty (50) gallons per minute or less if such water well is commingled, combined, clustered, or joined with any other water well(s) or other water source serving a single purpose, other than a water source used to water range livestock. Such wells shall be considered one water well requiring a single permit and the combined capacity shall be used as the rated capacity on the permit application.

5.2.3. Any existing well pumping less than 50 gpm that is sought to be modified to pump greater than 50 gpm then a well permit is required and is subject to the Well Ranking System Methodology and subsequent minimum score for approval. If the well to be modified is not registered and/or does not have a geologic log, then a testhole is required to be completed within 25 feet of the well to be modified. The testhole will be used to determine the aquifer thickness and transmissivity values and the location of the well to be modified will be used in the well density calculation portion of the Well Permit Ranking System Methodology.

5.2.4. Any person who has failed or in the future fails to obtain a permit as required by subsections 5.2.1 through 5.2.3 shall make application for a late permit on forms provided by the District. The late permit application shall contain the same information as required by Chapter 5.4. The application for a late permit shall be accompanied by a one thousand-dollar ($1,000) fee payable to the District.

5.3. Spacing of Water Wells – No water well requiring a permit under this chapter shall be constructed within five hundred (500) feet of any registered domestic or livestock wells, one thousand (1,000) feet of any other registered irrigation, commercial/industrial or "other" type wells and two thousand six hundred forty feet (½ mile) of any registered public water supply wells under separate ownership or any non-constructed wells with an active well permit. No public water supply well shall be constructed with two thousand six hundred forty feet (½ mile) of any registered irrigation, commercial/industrial or "other" type well under separate ownership or any non-constructed wells with an active

well permit.

5.3.1. If any registered well falling within 6,000 feet of a proposed well is known to be incorrectly located in the Department's registered well database based upon the District's GPS well database, the District's GPS location will be used in the well density calculation portion of the Well Ranking Methodology. The District will assist well owners with updating the well location with the Department.

5.3.2. Replacement well spacing, special conditions – A replacement well may not be constructed any closer to a water well under separate ownership if the original well is located less than the spacing set forth in Chapter 5.3.

5.3.3. Illegal water wells not protected – Illegal water wells are not protected by the provisions of this Rule. The failure of a person to update water well registration information, ownership and irrigated acres records shall not jeopardize his or her well spacing protection provided under this Rule unless:

5.3.3.1. The District determines that said person has knowingly attempted to deceive the District.

5.3.3.2. The well owner was notified by the District that the water well was identified as unregistered and constructed after such date in which registration was required and said person failed to act in good faith to register the water well. If the well owner agrees to comply with registering the water well, the District will provide assistance as needed.

5.3.3.3. The District determines that said person has failed to act in good faith in matters pertaining to these rules and regulations.

5.3.4. Spacing for commingled water wells – When water wells are commingled, combined, clustered, or joined and have a combined total capacity greater than fifty (50) gallons per minute, each water well shall comply with all provisions of Chapter 5.3.

5.3.5. Request for a spacing variance – Any person applying for a permit to construct a well that would violate any portion of Chapter 5.3 may request a variance as outlined in Chapter 6.

5.4. Information required for a well permit or late well permit application – The application shall contain (a) the name and post office address of the applicant or applicants, (b) the intended use, (c) the intended location of the proposed water well or other means of obtaining groundwater, (d) the intended size, type and description of the proposed water well and the estimated depth, if known, (e) the estimated or desired capacity in gallons per minute, (f) the acreage and location of the land involved if the water is to be used for irrigation, (g) a description of the proposed use if other than for irrigation purposes, (h) the registration number of the water well being replaced if applicable, and (i) such other information as the District requires.

5.4.1. Fees – A nonrefundable fifty dollar ($50.00) filing fee shall accompany each well permit application and a nonrefundable one thousand dollar ($1,000.00) filing fee shall accompany each late well permit application received.

5.4.2. All well permit applications submitted must be signed by the landowner, a person with power of attorney or a pending landowner as evidenced by an instrument such as a signed purchase agreement, a copy of which shall be provided to the District at the time the application is submitted.

5.4.3. Each application for a permit or late permit must be accompanied with documentation that a test hole was drilled with the following information included:

5.4.3.1. A detailed geologic/lithologic log of materials encountered with depth clearly detailing the depth, color, thickness and size of the various geologic formations encountered and if possible, the measured depth to groundwater from the ground surface. Testholes must be logged by a licensed well driller, professional geologist or someone under their supervision. The District has the right to reject a testhole log if evidence suggests the log is not representative of the area geology.

5.4.3.2. The testhole must be drilled to bedrock, when possible, and indicated on the geologic log submitted.

5.4.3.3. Geographic coordinates of the testhole location in either degrees minutes seconds or decimal degrees using North American Datum 1983 (NAD83).

5.4.3.4. The proposed well must be constructed within a fifty (50) foot radius of the testhole location submitted with the well permit application.

5.4.3.4.1. During the construction of a newly approved well, the well driller encounters geology significantly different from the thicknesses and material sizes of the previously submitted testhole geologic log, the well driller will contact the District before completing the well.

5.4.3.4.2. Each application for a irrigation well permit or late permit must also be accompanied with a detailed site plan and/or map based on the expected well capacity, site conditions and irrigation system specifications from a qualified irrigation specialist or sales technician depicting the number and location of acres of land to be irrigated. The total number of irrigated acres included on the plan will be the total number of irrigated acres entered on the well permit application. The applicant shall have a two-year time period, beginning from the well completion date as indicated on the well registration, to complete the development of the acres to be irrigated as indicated by the plan. Acres not developed within the two-year time period will be deducted from the total indicated in the plan and the acres developed will be considered the historically irrigated acres. The irrigation plan cannot include more acres than the proposed well capacity is capable of irrigating. The District may establish criteria for determining the maximum acres a well can irrigate based upon the actual well capacity and type of irrigation system being used. If the irrigation plan fails to meet criteria for approval, the applicant will be allowed to revise the plan in accordance with section 5.4.6.

5.4.3.5. In the event that a portion of the irrigated acres shown on the plan are under separate land ownership, the applicant must provide a written

agreement signed by all parties confirming the plan. The corresponding County Assessor's office(s) will be notified of the acres irrigated.

5.4.4. Each application for a permit or late permit shall include or be provided any additional information deemed necessary by the District to determine compliance with these rules and regulations.

5.4.5. Additional information may include, but is not limited to, a testhole geophysical log, a hydrogeologic evaluation and/or groundwater modeling analysis.

5.4.6. If the District finds that the application for a permit or late permit is incomplete or needs corrections, it shall return the application to the applicant for any necessary corrections. Corrections must be made within sixty (60) days or the application will be cancelled. No refund of any application fees shall be made regardless of whether the permit is approved, canceled or denied. A permit may be withdrawn in accordance with section 5.16. If the well permit is not withdrawn by the day of the Board meeting, then no refund of any application fees shall be made.

5.5. Wells Designed to Pump Greater than 50 gpm but less than 150 gpm - Wells designed to pump greater than 50 gpm but less than 150 gpm do require a well permit application but are not subject to the Well Permit Ranking Methodology minimum scoring approval requirement.

5.5.1. These types of wells would not be allowed for the irrigation of crops including groundwater pumped into a surface water reach and/or surface water storage impoundment.

5.5.2. Allowable uses include agricultural spray tank filling, fire suppression, wetland flooding as part of a Wetland Reserve Program requirement, geothermal type applications and the filling of ponds for livestock watering & recreation.

5.5.2.1. Proposed uses not listed may also not be subject to the well permit ranking methodology minimum scoring approval requirement if approved by the Board.

5.5.2.2. A flowmeter will be required.

5.5.3. Livestock operations such as chicken, turkey & swine confinements will need to submit a geologic testhole log, a water use plan detailing the number of head to be watered, the number of days the well will be used throughout a year, an estimated annual volume to be pumped and any other pertinent information requested by the District.

5.5.3.1. Approval will be granted on a case by case.

5.5.3.2. A flowmeter will be required.

5.6. Well permit review – District staff will review the applications received and compile all pertinent hydrogeologic data, information provided by the applicant and any other information that is readily available. The information will be brought forth to the Programs & Projects Sub-Committee for consideration where upon a motion will be made to approve, deny or table the application. The motion made in the Sub-Committee meeting will be brought forth to the entire Board for consideration. An application may be tabled until the next Board meeting if the Sub-Committee and/or Board feels additional information is needed for a decision or the application was received after 4:30 pm on the Thursday prior to the regularly scheduled monthly Board meeting on the

second Thursday of each month.

5.6.1. Using the best data available to the District, including any information submitted by the applicant as part of the well permit application, evidence must show that the proposed well has the ability to meet or exceed the flow volume included on the permit application and produce enough water to support the purpose shown on the permit application. Data must also show that the well will not have a significant negative impact to the long term sustainability of the aquifer that serves as the primary source of water for the proposed well and the proposed well will not negatively impact the ability of pre-existing properly constructed, maintained and operated registered wells served by the same primary aquifer to operate in a reasonable manner. Permit applications meeting all the criteria set forth in this section shall be approved by the District and those failing to meet the criteria shall be denied or approved with conditions as established by the District.

5.6.2. The District has developed a standardized method for evaluating and ranking well permit applications based upon criteria set forth in the District's Well Permit Ranking System (See Appendix D). The six criteria considered are 1) the thickness of primary aquifer formation, 2) calculated effective transmissivity of the primary aquifer formation, 3) weighted well density of surrounding irrigation, 4) weighted well density of domestic, livestock, commercial/industrial, "other" types, 5) weighted well density of public water supply wells and 6) the method of applying groundwater to land if the well permit application is for irrigation.

5.6.3. The Well Permit Ranking System shall include a goal for the future development of high capacity wells in the District. The System's methodology shall be periodically reviewed and may be revised as needed to best meet that goal.

5.6.4. The Board shall set the minimum ranking score required for approval by motion and has the ability to change the minimum score as needed to maintain the groundwater reservoir life goal. The minimum ranking score required for approval may vary from one aquifer region of the District to another.

5.6.5. Well permit and late well permit applications will be date stamped upon arrival to the District and are scored using the Well Permit Ranking System based upon the date the application is received and the wells registered in the Department's database through that date.

5.6.6. Wells registered with the Department as observation, monitoring, ground heat exchanger, heat pump, injection, geothermal and any other de minimis uses will not be accounted for in the well density calculations.

5.6.7. Replacement wells require a well permit or late well permit however a testhole is not required and the permit does not require a minimum score as set forth in Chapter 5.5.4.

5.6.8. Public water supply wells are exempt from the requirements of Chapters 5.6.2 and 5.7.5 however Chapters 5.2, 5.3 and 5.4 will remain applicable;

5.6.9. No more than two irrigation wells will be approved to apply water on any single or multiple irrigation delivery system(s).

5.6.10. Active well permit applications will be accounted for in the well density calculations of the well permit ranking system.

5.6.11. Well permit applications received in which the calculated transmissivity value from the well permit ranking system methodology (See Appendix D, Section 2,

Equation 1) is less than 10,000 gallons per day per foot shall not receive approval.

5.7. Denial of a permit – An application for a permit or late permit for a water well in a management area shall be denied only if the District finds:

5.7.1. application fails to meet the criteria set forth in Chapter 5.5.1

5.7.2. that the location or operation of the proposed water well or other work would conflict with any regulations or controls adopted by the District or of other applicable laws of the State of Nebraska;

5.7.3. the applicant refuses to agree to the terms in Chapter 5.13;

5.7.4. that a well permit application, testhole log or irrigated acres plan includes any intentionally misleading or falsified data;

5.7.5. the well permit application fails to meet the minimum score from the District's Well Permit Ranking System Methodology as established by the Board of Directors;

5.7.6. that the proposed use would not be a beneficial use of water for domestic, agricultural, manufacturing or industrial purposes;

5.7.7. in the case of a late permit only, that the applicant did not act in good faith in failing to obtain a timely permit;

5.7.8. all permits shall be issued with or without conditions attached and approved or denied not later than sixty-five (65) days after receipt by the District of a complete and properly prepared application.

5.8. Hydrogeologic evaluation required – Any person who intends to modify any existing water well or construct any new or replacement water well with an annual withdrawal of groundwater greater than five hundred (500) acre-feet, such person shall, in addition to the information and requirements for the well permit application in Chapter 5.2, 5.3 and 5.4, provide the District with a hydrogeologic evaluation illustrating the impact, if any, from the intended withdrawal on the static water level of the aquifer and on local groundwater users as dictated by the hydrogeologic evaluation equations and/or models.

5.8.1. Construction/withdrawal prohibited – The NRD Board of Directors reserves the right to deny any well permit application under this section based upon any of the following:

5.8.1.1. the proposed water well is shown by the hydrogeologic evaluation and/or other data and information to have a reasonable short or long-term probability of adversely impacting the local aquifer and surrounding groundwater wells with a higher preference of use, or

5.8.1.2. the hydrogeologic evaluation does not conform with accepted methods, or the data used does not adequately represent actual hydrologic and/or hydrogeologic conditions, or

5.8.1.3. the construction of the water well or increased groundwater withdrawal would violate any other provisions of these rules and regulations, or

5.8.1.4. the proposed well is located less than the minimum setback distance as set forth in Chapter 5.3, or

5.8.1.5. the application meets any of the criteria set forth in Ch. 5.7.

5.9. Groundwater withdrawal – For purposes of this chapter, groundwater withdrawal shall

mean the total groundwater pumped, less any water returned to the aquifer through an injection well within one thousand (1,000) feet of the source.

5.9.1. Operations that return water to the aquifer must provide the District with evidence of compliance with federal, state and local rules and regulations governing such activities.

5.10. Flowmeter required – All new and replacement water wells designed and constructed to pump greater than fifty (50) gallons per minute or existing water wells modified to pump greater than fifty (50) gallons per minute must be equipped with a flowmeter prior to groundwater withdrawal if any of the following conditions are met:

5.10.1. Any new or replacement high capacity wells approved after May 1st, 2013.

5.10.2. Allocations as outlined by Chapters 15, 16 and 17 become effective.

5.10.3. Any person with an approved permit that owns or controls land upon which a water well is proposed to be constructed or groundwater withdrawal increased as provided in Chapter 5.8.

5.10.4. Any well that receives an approved transfer permit

5.10.5. Any well with an approved Department permit to conduct water into a stream and/or reservoir for the purpose of irrigation.

5.10.6. Any well meeting criteria as outlined in Chapter 9.4.

5.10.7. Any irrigation well increasing the number acres to be irrigated.

5.11. Faucet/Spigot Installation – All new and replacement water wells with an approved well permit shall be equipped with an operable faucet/spigot for the collection of water samples.

5.12. Exempt wells – No permit shall be required for (a) test holes or dewatering wells with an intended use of ninety (90) days or less, or (b) for single water wells designed and constructed to pump fifty (50) gallons per minute or less.

5.13. Permit no exemption from liability – The issuance of a permit by the District, as provided for in this Rule, should not be construed by the applicant to exempt him or her from any liability which may result from the withdrawal of groundwater.

5.14. When a permit is approved – When a permit is approved, the applicant shall have a licensed well contractor commence construction of the water well within one (1) year after the permit approval date to complete construction of the well. If the applicant fails to complete the well under the terms of the permit, the District will cancel the permit and it will be considered expired. An applicant of an expired permit will have to reapply, and the application will be rescored as if the permit were a new application should the applicant choose to reapply. Any new wells constructed and registered within six thousand (6,000) feet of the proposed location will be included in the density criteria portion of the scoring system. Once an active well permit has expired, been withdrawn or canceled, a 90-day waiting period is required before a well permit application can be resubmitted for a well on the same parcel of land or for a well in an adjacent parcel that will irrigate all or a portion of the acres included on the irrigation plan outlined in Chapter 5.4.4.

5.14.1. After the water well registration filing date with the Department of Natural Resources, the applicant agrees to allow District staff:
5.14.1.1. to collect a GPS (global positioning satellite) location coordinate of said well;
5.14.1.2. to collect and analyze a water sample from said well, in order to establish a benchmark nitrate-nitrogen concentration;
5.14.1.3. to measure the pumping rate from said well under normal operating conditions.
5.14.1.4. to verify that a flowmeter has been installed as provided in Chapter 5.10.
5.14.2. The applicant agrees to allow the District to add the approved well or wells to the District's observation well monitoring network for collecting static water level measurement data as deemed necessary.

5.15. A permit issued shall specify all regulations and controls adopted by the District relevant to the construction or utilization of the proposed water well. The District shall transmit one copy of each permit issued to the Nebraska Department of Natural Resources, the permit applicant, the indicated well contractor and the corresponding County Assessor's office.

5.16. A well permit application may be withdrawn by the applicant up to the close of business the day before the Board meeting date and the filing fee shall be refunded to the applicant.

5.17. If at any time prior to the consideration of approval or denial of a well permit application, it is discovered that an error was made by the District during the permit review process or the well permit ranking system methodology calculation, the application will be withdrawn from consideration and the application fee returned. The applicant will be provided with an explanation of the error(s).

CHAPTER 6 – REQUEST FOR SPACING VARIANCE

6.1. Request for a spacing variance – Any person who intends to construct any new or replacement water well(s) or modify an existing water well on land which he or she owns or controls that would meet the criteria set forth in Chapter 5.2 but is unable to meet the spacing requirements set forth in Chapter 5.3 may apply to the District for a request for a variance. A well permit application shall accompany the request for a variance.

6.2. Information required – An application for a variance shall be made on forms provided by the District and shall include the following:
6.2.1. A map showing the location of lands and measured distances from the proposed well location to any existing water wells or any non-constructed wells with a valid and approved well permit that would be affected.
6.2.2. An explanation as to why the variance is needed including:
6.2.2.1. How the person making application for the variance would be affected if

the variance is not granted, and

6.2.2.2. Alternatives considered, including why each alternative was rejected in lieu of a variance.

6.2.3. The name and address of all landowners adjacent to the location of the requested variance.

6.2.4. A written waiver signed by all adjacent registered water well owner(s) that have a well or wells located within the minimum spacing requirements as set forth in Chapter 5.3.

6.2.5. Any other information the person making the request shall deem relevant.

6.2.6. Any other information deemed necessary by the District.

6.2.7. A one hundred dollar ($100.00) nonrefundable application fee payable to the Nemaha Natural Resources District. This fee does not include the well permit application fee.

6.2.8. Upon receipt of a well permit and variance application, the District or a committee which has been delegated authority by the Board shall have sixty-five (65) days to review the variance.

6.2.9. All variance requests must be approved by the Board, unless approval authority has been delegated to a committee by the Board.

6.2.10. When issuing a variance, the District or committee which has been delegated authority by the Board, may include specific conditions which will be required as part of the permitting or drilling process.

6.2.11. Any variance granted under Chapter 6.1 will be valid for a period of not more than one hundred eighty (180) days from its date of approval. This rule supersedes the one (1) year construction period as set forth in Chapter 5.14.

6.3. Applicant shall appear before the Programs & Projects Sub-Committee – The applicant applying for a variance or his or her representative shall appear before the District's Programs & Projects Sub-Committee to present the reasons for the variance request.

6.3.1. With prior notification to the District, written testimony may be provided if the applicant cannot be present to meet with the committee.

6.4. Requests considered on case by case basis – Requests for variances shall be considered by the Board on a case by case basis.

6.5. Grantee must agree to conditions for granting a variance – If a variance is granted, the grantee may be required to sign an affidavit agreeing to all terms and conditions of the variance.

6.5.1. The affidavit will be recorded with the Register of Deeds by the District.

6.5.2. The recorded affidavit will be attached to all properties affected by the variance.

CHAPTER 7 – ENFORCEMENT OF RULES AND REGULATIONS

7.1. Enforcement of these rules and regulations – These rules and regulations will be enforced by cease and desist orders entered by the Board, in accordance with the Nebraska

Groundwater Management and Protection Act, and by bringing an appropriate action in the district court in the county where the violation occurs.

7.2. Appeal – A person aggrieved by a ruling of the Board concerning a matter contained in these rules and regulations shall have a right to request a formal adjudicatory hearing.

7.3. Situations not covered by these rules and regulations – The Board may consider situations not covered by these rules and regulations on a case by case basis.

7.4. Severability – If a rule or part of a rule herein is declared invalid or unconstitutional such declaration will not affect the validity or constitutionality of the remaining rules or portions thereof.

7.5. Rules and Regulations not an exemption from state laws – Nothing contained in these rules and regulations shall exempt a person from the provisions of applicable state laws.

CHAPTER 8 – PHASE I GROUNDWATER QUANTITY MANAGEMENT AREA DETERMINATION AND REQUIRMENTS

8.1. Phase I Groundwater Quantity Management Area – Upon establishment of these rules and regulations, the entire District shall be designated as a Phase I Groundwater Quantity Management Area.

8.2. Any person who intends to construct any new or replacement water well designed to pump greater than fifty (50) gallons per minute on land which he or she owns or controls in the District shall, before commencing construction, comply with the rules set forth in Chapter 5 – Water Well Permits.

CHAPTER 9 – PHASE II GROUNDWATER QUANTITY MANAGEMENT AREA DETERMINATION AND REQUIREMENTS

9.1. Phase II Groundwater Quantity Management Area (GWQMA) – The District will initiate the following actions when the Determination of District Groundwater Levels indicates the historical average static water level elevation has decreased by fifteen percent (15%) or more for any well in an established Aquifer Region as defined in Chapter 18 or designated well monitoring area for a two (2) consecutive year period. When this trigger is actuated, the NRD will take the following actions:

9.1.1. Increase the number of wells monitored in the area to determine the extent of the problem, to serve as a basis for triggering a Phase II GWQMA, and to obtain the hydrogeologic information necessary to delineate a Phase II GWQMA. The intensified monitoring program described below applies to the entire District. The actual monitoring program for each problem area may vary according to the local hydrogeologic characteristics of the area.

9.1.2. The District will determine an initial area to be monitored. The shape and size of the area will change as more information is gathered. A minimum area of nine (9) square miles will be monitored.

9.1.3. The minimum number of monitoring sites will be fifty percent (50%) of the number of registered irrigation wells in the area that are suitable for use as groundwater level observation wells (considering criteria such as quality of well construction, total well depth and screened intervals). The District will also consider using registered industrial, livestock, monitoring, observation, public water supply, and domestic wells that would be suitable as monitoring sites.

9.1.4. Develop a localized groundwater model, as deemed necessary, to further delineate the area to be monitored.

9.1.5. Install dedicated observation wells as deemed necessary to collect additional geologic and static water level data.

9.2. All Phase I Groundwater Quantity Management Area Requirements as set forth in Chapter 8 shall apply.

9.3. All permitted wells approved and constructed that are within the initial area to be monitored, as set forth by Chapter 9.1.2, will be added to the District's Observation Well Monitoring Network as deemed necessary.

9.4. All registered irrigation wells that are within the area delineated by Chapter 9.1.2. are required to have a fully functioning flowmeter installed. The Board will establish a date for having meters installed not to exceed 2 years following Phase II designation.

9.4.1. The flowmeter must be equipped with a totalizer gauge that reads in acre-inches and a flowrate gauge that reads in gallons per minute.

9.4.2. Total annual groundwater withdrawal reports will be required by January 31st for the past calendar year's growing season.

9.5. Automatic Phase II GWQMA Designation – Based upon the Thickness of Principle Aquifer map (Chapter 4.50), the areas designated as "Absent or Very Thin" are hereby designated as automatic Phase II GWQMAs (see Appendix A map) unless testhole or geophysical data proves otherwise.

9.5.1. In order to easily define these areas due to their irregular shapes, the areas have been squared off using one-mile square sections as defined by the Public Land Survey System (PLSS).

9.5.2. Any survey section in which the aquifer was not mapped as "Absent or Very Thin", but which is surrounded on by at least three sides by survey sections that are mapped as "Absent or Very Thin", shall also be included in the Phase II GWQMA designation.

9.5.2.1. Testholes received for well permit application approval in the Phase II GWQMA will be reviewed on a case by case basis and approved if the well permit ranking system score meets the minimum number of points for approval as set forth by the Board.

9.6. The closure to the issuance of any new well permits, groundwater transfers or increase in

irrigated acres will be in effect for the entire Phase II area unless geophysical or testhole geologic data confirms viable aquifer material is present, the use of the well would not negatively impact existing wells, the permit meets all criteria set forth by the District for approval and/or hydrogeologic evaluation equations and models indicates the well will not increase groundwater level declines within the area. Permit will be approved or denied on a case by case basis.

CHAPTER 10 – PHASE III GROUNDWATER QUANTITY MANAGEMENT AREA DETERMINATION AND REQUIREMENTS

10.1. Phase III Groundwater Quantity Management Area (GWQMA) – The District will initiate the following actions when the Determination of District Groundwater Levels indicates the static water level elevation has decreased by twenty five (25%) or more for any well in the Observation Well Monitoring Network for a two year consecutive period. When this trigger is actuated, the NRD will take the following actions:

10.2. All Phase I Groundwater Quantity Management Area Requirements as set forth in Chapter 8 and all Phase II Groundwater Quantity Management Area Requirements as set forth in Chapter 9 shall apply.

10.3. A Phase III Groundwater Quantity Management Area can only be designated from all or a portion of a previously designed Phase II GWQMA.

10.4. Annual groundwater use allocations as determined by the NRD Board of Directors and set forth by Chapters 15, 16, and 17 of these rules and regulations will be in effect.

10.5. The closure to the issuance of any new well permits will be in effect for the entire Phase III area.

10.6. Replacement wells will be allowed; however, the replacement well cannot be designed to pump greater than the registered pumping capacity of the original well or increase the number of acres historically irrigated.

10.6.1. A replacement well can be relocated out of a Phase III GWQMA into a lesser Phase area; however, Phase III rules will remain in effect until the Phase III area is dissolved by the Board of Directors.

CHAPTER 11 - GROUNDWATER TRANSFER

11.1. Groundwater transfer permit – A groundwater transfer permit is required for the transfer of groundwater off overlaying land for any purpose. Upon receipt of an application for the transfer of groundwater off overlaying land, the District shall provide notice of the application by publishing it on the regularly scheduled monthly NRD Board meeting agenda. Any affected party may object to the transfer of groundwater by filing a written objection with the District, specifically stating the grounds for such objection. The

objection must be received on or before the regularly scheduled monthly NRD Board meeting. Late objections will not be considered. Upon the filing of such objection, the District shall conduct a preliminary investigation to determine if the withdrawal, transfer and use of groundwater are consistent with the requirements of Chapter 11.2 and all rules and regulations of the District. Following the preliminary investigation, if the District has reason to believe that the withdrawal, transfer and use is consistent with all rules and regulations of the District, but may not comply with one or more requirements of Chapter 11.2, the District shall request that the Department hold a hearing on such transfer.

11.2. Transfer of groundwater – Any person who withdraws groundwater for agricultural purposes, or for any purpose pursuant to a groundwater remediation plan as required under the Environmental Protection Act, including the providing of water for domestic purposes, from aquifers located within the District may transfer the use of the groundwater off the overlying land if the groundwater is put to reasonable and beneficial use within the State of Nebraska and is used for an agricultural purpose, or for any purpose pursuant to a groundwater remediation plan as required under the Environmental Protection Act, including the providing of water for domestic purposes, after transfer, and if such withdrawal, transfer and use:

11.2.1. will not significantly adversely affect any other water user;

11.2.2. is consistent with all applicable statutes and District rules and regulations.

11.3. Transfer of groundwater for agricultural purposes – any person who desires to transfer groundwater off the overlying land for agricultural purposes, before commencing construction, must apply for a transfer permit and meet all of the following requirements:

11.3.1. The supply well will be scored using the Well Permit Ranking System Methodology as provided in Appendix D and the minimum score or greater as set forth in Chapter 5.7.5 shall be required for the transfer to be approved.

11.3.1.1. If more than one (1) supply is used in the irrigation system, then each individual supply well will be scored using the Well Permit Ranking System Methodology as provided in Appendix D and the corresponding scores will be averaged to determine the final score. The minimum score or greater as set for the in Chapter 5.7.5 shall be required for the transfer to be approved.

11.3.1.2. If the supply well was previously approved using the Well Permit Ranking System Methodology, then the testhole geologic log submitted with the well permit application will be used to calculate the aquifer thickness and transmissivity portions of the scoring.

11.3.2. The maximum number of additional acres to be irrigated can be no greater than what the supply well has historically irrigated or specified on a previous approved well permit application.

11.3.3. Transfers are only allowed on contiguous parcels of land from the supply well.

11.3.4. Transfers are allowed to be made beyond a government survey section if such transfer is to a tract land directly adjacent or cater-corner (diagonal) to the tract of land on which the water well is located.

11.3.5. Transfer are only allowed on land owned by the supply well(s) landowner.

11.3.6. Only one transfer is allowed from a single or comingled well system.

11.3.7. If a transfer of water occurs into another District, it is the landowner's responsibility to contact the neighboring NRD and follow any rules and regulations they may have in place.

11.3.8. Applicants shall be required to provide access to the property at all reasonable times for the purpose of inspection. Nebraska Revised Statute §46-739(1)(k).

11.3.9. Transfers of irrigation water to any area where a well stay, moratorium, permit suspension, groundwater allocation has been established or to an area that is determined to be fully or over appropriated by the Department shall be prohibited.

11.4. Domestic transfer of groundwater to an adjacent section of land – Any person other than a public water supplier as defined in Neb. Rev. Statute §46-638 may transfer groundwater off the overlying land for the purpose of domestic use of groundwater required for human needs as it relates to health, fire control, sanitation, and irrigation on less than one acre of land if:

11.4.1. the location and use of the water and any pipeline or other means of conveyance are authorized by easement or other adequate property interest on all land on which such water well and pipeline or other means of conveyance are located and

11.4.2. the capacity of the water well or series of water wells connected together for such purposes does not exceed fifty (50) gallons per minute.

11.5. Environmental or recreational transfers of groundwater – Any person intending to withdraw groundwater from any water well located in the District, transport that water off the overlying land, and use it to augment water supplies in any wetland or natural stream for the purpose of benefiting fish or wildlife or producing other environmental or recreational benefits may do so for such purposes only after applying for and obtaining a permit from the District.

11.5.1. An application for any such permit shall be accompanied by a nonrefundable fee of fifty dollars ($50.00) payable to the District. Such permit shall be in addition to any permit required pursuant to Neb. Rev. Statute §46-252 or §46-735 or subdivision (1)(k) of §46-739.

11.5.2. Prior to acting on an application pursuant to this section, the District shall provide an opportunity for public comment on such application at a regular or special board meeting for which advance published notice of the meeting and the agenda have been given consistent with the Open Meetings Act.

11.5.3. In determining whether to grant a permit under this section, the Board of Directors for the District shall consider:

11.5.3.1. Whether the proposed use is a beneficial use of groundwater;

11.5.3.2. The availability to the applicant of alternative sources of surface water or groundwater for the proposed withdrawal, transport, and use;

11.5.3.3. Any negative effect of the proposed withdrawal, transport, and use on groundwater supplies needed to meet present or reasonable future demands for water in the area of the proposed withdrawal, transport, and use, to comply with any interstate compact or decree, or to fulfill the provisions of any other formal state contract or agreement;

11.5.3.4. Any negative effect of the proposed withdrawal, transport, and use on surface water supplies needed to meet present or reasonable future

demands for water within the state, to comply with any interstate compact or decree, or to fulfill the provisions of any other formal state contract or agreement;

11.5.3.5. Any adverse environmental effect of the proposed withdrawal, transport, and use of the groundwater;

11.5.3.6. The cumulative effects of the proposed withdrawal, transport, and use relative to the matters listed in Chapter 11.4.2.1 through 2 of this section when considered in conjunction with all other withdrawals, transports, and uses subject to this section;

11.5.3.7. Whether the proposed withdrawal, transport, and use is consistent with the district's groundwater quantity and quality management plan and with any integrated management plan previously adopted or being considered for adoption in accordance with Neb. Rev. Statute §46-713 to §46-719; and

11.5.3.8. Any other factors consistent with the purposes of this section which the board of directors deems relevant to protect the interests of the state and its citizens.

11.5.4. Issuance of a well permit shall be conditioned on the applicant's compliance with the rules and regulations of the District from which the water is to be withdrawn and, if the location where the water is to be used to produce the intended benefits is in a different natural resources district, the applicant must comply with the rules and regulations of that natural resources district. The Board of Directors may include such reasonable conditions on the proposed withdrawal, transport, and use as it deems necessary to carry out the purposes of this section.

11.5.5. The applicant shall be required to provide access to his or her property at reasonable times for purposes of inspection by officials of any District where the water is to be withdrawn or to be used.

CHAPTER 12 – CERTIFICATION OF GROUNDWATER USE ACRES AND WATER WELL USE REPORTING

12.1. Public warning of groundwater declines – The District shall issue a public notice warning groundwater user that use restrictions will be implemented as groundwater level declines trigger Chapter 9 criteria.

12.2. Agricultural users must report – By March 1st after the issuance of the public notice described in Chapter 12.1, an agricultural user must report the following:

12.2.1. The number and location of groundwater use acres.

12.2.2. The water wells under his or her control.

12.2.3. A copy of the most recent property tax statement, or other documentation from the county assessor showing irrigated acres, must be attached.

12.2.3.1. For tax exempt groundwater use acres, the groundwater user shall provide available documentation as deemed necessary by the District.

12.2.4. Any other information deemed necessary by the District.

12.2.5. Board will certify groundwater use acres – The Board will certify the number of

groundwater use acres for each agricultural user based on the best information available from aerial imagery, remotely sensed data, USDA Farm Service Agency data and County Assessor's records.

12.2.6. The Board will certify tax exempt groundwater use acres based on available information.

12.2.7. The Board will consider new requests for certification of groundwater use acres on a case by case basis.

12.2.8. The Board may consider adjustment to certified groundwater use acres based on evidence presented by the groundwater user.

12.3. Pooling of certified groundwater use acres – The certified groundwater use acres under the control of the same agricultural user in the same government survey section and/or irrigated by the same water well shall be considered one (1) unit for the purposes of allocation under the following conditions:

12.3.1. The owner of the land shall be considered the agricultural user in control of groundwater withdrawal unless his or her land is included in a pooling agreement.

12.3.2. Pooling agreements will be permitted between agricultural users and units of groundwater use acres under the following conditions:

12.3.2.1. Groundwater use acres in the same farming operation or served by the same water well may be pooled.

12.3.2.2. One agricultural user shall be designated by the agreement to be responsible for all reporting of groundwater withdrawal and acres to the District.

12.3.2.3. A new pooling agreement, or amendments to an existing pooling agreement, must be submitted to the District by March 1.

12.3.2.4. All parties must sign the agreement or provide appropriate power of attorney.

12.3.2.5. Certified groundwater use acres which have exhausted their allocation shall not be added to a pooling agreement.

12.4. Municipal users must report – By March 1, after the issuance of the public notice described in Chapter 12.1, a municipal user must report the following information to the District:

12.4.1. The water wells operated by the municipal user.

12.4.2. The total acreage within the municipal jurisdictional limits.

12.4.3. The irrigated agricultural acreage within the municipal jurisdictional limits.

12.4.4. The dryland agricultural acreage within the municipal jurisdictional limits.

12.4.5. Any acreage outside the municipal jurisdictional limits served by the municipal water supply system.

12.4.6. The municipality's population according to the most recent federal census.

12.4.7. The number of people served by the municipal water supply system.

12.4.8. The number of service connections served by the municipal water supply system.

12.4.9. Any other information deemed necessary by the District.

12.5. Other groundwater users must report – By March 1 after the issuance of the public notice described in Chapter 12.1, the other groundwater user must report the following information to the District:
12.5.1. The water wells under the user's control.
12.5.2. The purpose of the groundwater withdrawal.
12.5.3. Historic annual groundwater withdrawal, if known.

12.6. Groundwater user must report changes in information – A groundwater user must report any changes or additions to the information required in this Rule within sixty-five (65) days.

12.7. Penalty for failure to report – The failure to report any information required by this Rule may result in the issuance of a cease and desist order denying the withdrawal of groundwater.

CHAPTER 13 – ANNUAL GROUNDWATER USE REPORTS

13.1. Agricultural groundwater user withdrawal report required – By January 31st, an agricultural groundwater user shall report the groundwater withdrawal from each water well he or she controlled for the calendar year's growing season.
13.1.1. A groundwater user's first report shall be due on January 31st, following his or her initial information report required by Chapter 12.

13.2. Municipal groundwater user withdrawal report required – By March 1st of each year, a municipal user shall report the groundwater withdrawal from each water well he or she controlled for the previous calendar year.
13.2.1. A groundwater user's first report shall be due on March 1st, following his or her initial information report required by Chapter 12.

13.3. Commercial/Industrial groundwater user withdrawal report required – By March 1st of each year, a commercial/industrial user shall report the groundwater withdrawal from each water well he or she controlled for the previous calendar year.
13.3.1. A groundwater user's first report shall be due on March 1st, following his or her initial information report required by Chapter 12.

13.4. Other high capacity wells uses – By March 1st of each year, any wells registered as "other" and pump greater than 50 gpm, the user shall report the groundwater withdrawal from each well he or she controlled for the previous calendar year.

CHAPTER 14 – WATER MEASUREMENT REQUIREMENTS

14.1. Groundwater withdrawal measured from connected wells – Groundwater withdrawals from water wells that are connected by a common pipeline may be measured using one flowmeter, provided the total groundwater withdrawal is measured.

14.2. All flowmeters installed must be approved – All flowmeters installed must be a type, brand and/or model approved by the District.

14.2.1. The District will consider the approval of flowmeters installed prior to the implementation of these rules and regulations on a case by case basis

14.2.2. The District will consider the approval of non-mechanical type flowmeters installed as part of subsurface drip systems, telemetry-controlled systems and other electronically controlled systems.

14.3. Reporting flowmeter installation – The groundwater user shall report the installation of a water flowmeter within thirty (30) days after installation.

14.3.1. The flowmeter must be installed according to manufacturer's specifications.

14.4. Reporting malfunctioning meters – A malfunctioning flowmeter must be reported to the District within twenty-four (24) hours after discovery.

14.5. Flowmeter maintenance – The District will inspect flowmeters for proper installation and operation.

14.5.1. The groundwater user shall be responsible for maintenance, repair and/or replacement of an improperly installed or malfunctioning flowmeter.

14.5.1.1. Maintenance must be done according to the schedule recommended by the manufacturer. If the manufacturer does not have written recommendations for maintenance, the NRD will determine an appropriate maintenance schedule.

14.5.1.2. The District may offer maintenance of flowmeters on a fee basis.

14.5.2. A record of the flowmeter reading must be kept by the groundwater user when a flowmeter is removed for offsite service or replacement.

14.5.3. When a flowmeter is removed for repair at a time when the groundwater user desires to withdraw groundwater, the District may install a temporary flowmeter.

14.5.3.1. District approved methods of determining groundwater consumption may be used if a flowmeter is not available or cannot be readily installed.

14.5.4. The flowmeter service provider shall certify in writing that a flowmeter meets the manufacturer's specifications following repairs or calibration.

14.5.4.1. The groundwater user shall provide the District with a copy of the certification.

14.6. Sealing of flowmeters – Flowmeters may be sealed by the District to prevent tampering.

14.6.1. The District may consider whether to seal a flowmeter when circumstances indicate doing so may cause unnecessary inconvenience for the groundwater user or the District.

14.7. Random inspection of flowmeters – the District shall have access at all reasonable times to randomly inspect installed flowmeters.

14.8. Removal of a seal must be approved – The seal on a flowmeter shall not be removed

without prior approval of the District.

14.8.1. A flowmeter may be removed for off season storage, where applicable.

14.8.1.1. In order to prevent groundwater contamination when a flowmeter is removed, the pipe opening must be covered in such a manner as to provide a watertight seal.

14.9. Penalty for failure to comply – A groundwater user that fails to report, or falsely reports groundwater withdrawal, removes a seal from a flowmeter, damages or interferes with the operation of a flowmeter, neglects to perform required maintenance, tampers with automated recording devices or allows another person to do so, shall be subject to forfeiture of allocation according to conditions set by the Board.

14.10. Variances will be considered – The District will consider variances in instances where Nebraska Department of Health and Human Services regulations governing public water supply systems conflict with these rules and regulations.

CHAPTER 15 - ALLOCATION TO AGRICULTURAL USERS

15.1. Amount of groundwater allocated – The allocation for the first groundwater use period shall be twelve (12) acre inches for each certified groundwater use acre.

15.2. Next allocation set by the Board – The Board will set a new allocation for the next groundwater use period by December 1st after the end of the previous groundwater use period.

15.2.1. The new allocation will be set by amendments to these rules and regulations in accordance with the requirements of state law.

15.3. Carry over of an unused portion of an allocation – When an agricultural user does not withdraw all his or her allocation of groundwater during a groundwater use period, the unused amount shall be added to his or her next groundwater use period allocation.

15.3.1. The maximum accumulated carry over shall not exceed one-third (⅓) of the allocation amount for the current allocation period.

15.4. Groundwater withdrawn in excess of agricultural user's allocation – Groundwater withdrawn in excess of agricultural user's allocation shall be deducted from his or her next groundwater use period allocation.

15.5. Transfer of groundwater use acres to a different groundwater user – When the control of certified groundwater use acres is transferred to a different agricultural user during a groundwater use period, the remaining allocation balance for said acres shall also be transferred to the new agricultural user.

15.5.1. If the groundwater use acres are in a pooling agreement, the affected agreements must be amended as provided in Chapter 12.

CHAPTER 16 – ALLOCATION TO MUNICIPAL USERS

16.1. Allocation for municipal user – A municipal user shall limit groundwater use to ninety-one thousand two hundred fifty (91,250) gallons (250 gallons per day) per capita served per calendar year plus twelve (12) inches per acre for the non-agricultural lands within the municipal jurisdictional limits for the groundwater use period.

16.1.1. A municipal user shall receive an allocation of twelve (12) inches per acre for the groundwater use period for irrigated agricultural lands that it serves. This allocation shall be added to the municipal user's total allocation.

16.2. Conservation procedures required – By March 1st after implementation of this Rule, the municipal user shall submit to the District an adopted administrative procedure that allows the municipal user to require water conservation practices and restrict the water use of its customers

16.2.1. The municipal user shall provide the District documentation of such passed ordinances and/or resolutions.

16.3. Conservation education required – By March 1st after implementation of this Rule, the municipal user shall submit to the District a conservation information and education plan designed for its customers and begin implementation of the plan.

16.4. Population census used to determine total capita use – The most recent population census information available from the United States Bureau of Census will be used to determine total capita groundwater use.

16.4.1. When a municipal user provides evidence that it delivers water to persons that have not been counted as part of the most recent census or to lands that had not previously been considered, the District shall make adjustments to the municipal user's allocation to compensate for these added water requirements.

16.5. Exempted groundwater uses – Groundwater used for fire protection, water and sewage system maintenance, construction and repairs shall not be considered when calculating annual groundwater withdrawal.

16.5.1. The municipal user shall provide documentation to estimating such uses.

16.5.2. The District shall consider other exemptions on a case by case basis when requested.

16.6. A municipal user must report other users which are supplied groundwater – A municipal user shall report to the District any other user, as described in Chapter 4.24, which is served by its water system.

16.6.1. Groundwater delivered to the other user shall not be considered part of a municipal user’s allocation.

16.7. Allocation adjustments – When a municipal user provides evidence that it has begun to serve additional people and/or land, the allocation for these people and/or land, during a groundwater use period shall be based on the actual remaining part of the groundwater use period in which groundwater withdrawal is expected to occur.

16.8. Carry over of unused portion of an allocation – When a municipal user does not withdraw

all its allocation of groundwater during a groundwater use period, the unused amount shall be added to his or her next groundwater use period allocation.

16.8.1. The maximum accumulated carry over shall not exceed one-third (⅓) of the allocation amount for the current allocation period.

16.9. Groundwater withdrawn in excess of municipal user's allocation – Groundwater withdrawn in excess of municipal user's allocation shall be deducted from its next groundwater use period allocation.

16.10. Next allocation set by the Board – The Board will set a new allocation for the next groundwater use period by December 1st prior to the end of each groundwater use period.

16.10.1. The new allocation will be set by amendments to these rules and regulations in accordance with the requirements of state law.

CHAPTER 17 – ALLOCATION TO ANY OTHER USERS

17.1. Allocation for other users – Any other user shall limit his or her groundwater withdrawal during the groundwater use period to one hundred (100) percent of his or her average annual withdrawal for the three (3) year period prior to the first groundwater use period.

17.2. New or modified operations requiring additional groundwater – If, at any time, any other user desires to start a new operation or modify an existing operation that will require a new or additional allocation, he or she shall request such an allocation. The request shall include:

17.2.1. The quantity of groundwater desired annually.

17.2.2. The purpose for which the groundwater is to be used.

17.2.3. An explanation of operation methods, including water conservation features, for that type of water use.

17.2.4. An estimate of the water use per unit of production, if applicable.

17.2.5. Other information requested by the District.

17.3. Next allocation set by the Board – The Board will set a new allocation for the next groundwater use period by December 1st prior to the end of each groundwater use period.

17.3.1. The new allocation will be set by amendments to these rules and regulations in accordance with the requirements of state law.

17.4. Carry over of unused portion of an allocation – When another user does not withdraw all his or her allocation of groundwater during a groundwater use period, the unused amount shall be added to his or her next groundwater use period allocation.

17.4.1. The maximum accumulated carry over shall not exceed one-third (⅓) of the allocation amount for the current allocation period.

17.5. Groundwater withdrawn in excess of other user's allocation – Groundwater withdrawn in excess of another user's allocation shall be deducted from his or her next groundwater use period allocation.

17.5.1. The total additional amount of groundwater withdrawn after the implementation of this Rule shall not exceed one-fifth (1/5) of the allocation for the current

groundwater use period.

17.6. Transfer of groundwater withdrawal to a different groundwater user – When the control of another user's withdrawal is transferred to a different groundwater user during a groundwater use period, the remaining allocation balance for the groundwater use period shall also be transferred to the new groundwater user.

CHAPTER 18 – AQUIFER REGION IDENTIFICATION

18.1. Primary Aquifers within the District – The District is composed of five primary aquifers see Appendix C for a map of the aquifer regions:

18.1.1. Paleovalley Alluvial

18.1.1.1. This area of the District includes portions of Lancaster, Gage, Johnson, Otoe and Nemaha Counties as well as two smaller areas in Pawnee and Richardson Counties.

18.1.2. Big Nemaha Alluvial

18.1.2.1. This area of the District includes the southeastern portion of Richardson County bordering the Big Nemaha River from the confluence of the Big Nemaha and the Missouri Rivers. The area extends upstream of the Big Nemaha to the Village of Salem.

18.1.3. Missouri River Alluvial

18.1.3.1. This area of the District includes all the eastern portion of Otoe, Nemaha and Richardson Counties bordering the Missouri River.

18.1.4. Shallow

18.1.4.1. This area of the District includes all areas of the District where the depth to bedrock is generally less than 100 feet and water bearing sands and gravels are absent or very thin.

18.1.5. Bedrock

18.1.5.1. This area of the District includes all remaining areas of the District not included within the Paleovalley Alluvial, Big Nemaha Alluvial, Missouri River Alluvial and Shallow Aquifer Regions

CHAPTER 19 – WELLHEAD PROTECTION AREAS

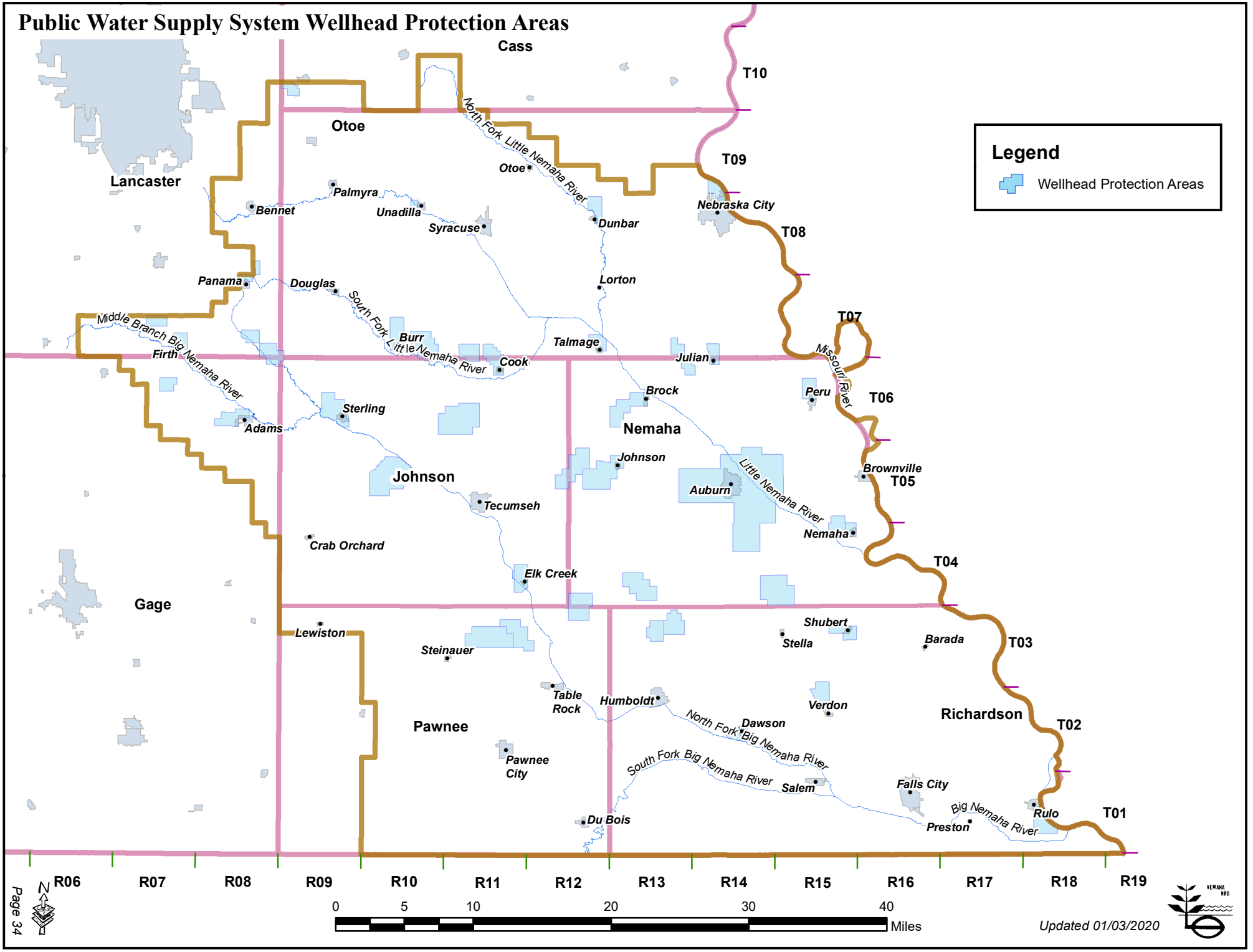
19.1 Every public water supply system wellfield within the District has a Nebraska Department of Environment and Energy delineated Wellhead Protection Area map. The District will provide technical assistance and well abandonment cost-share assistance as requested and necessary to protect the water quality and quantity of each system's wellhead protection area within the District. A map of the District's public water supply systems wellhead protection areas is shown on page 34.

CHAPTER 20 – ANGLED AND HORIZONTAL HIGH CAPACITY WELLS

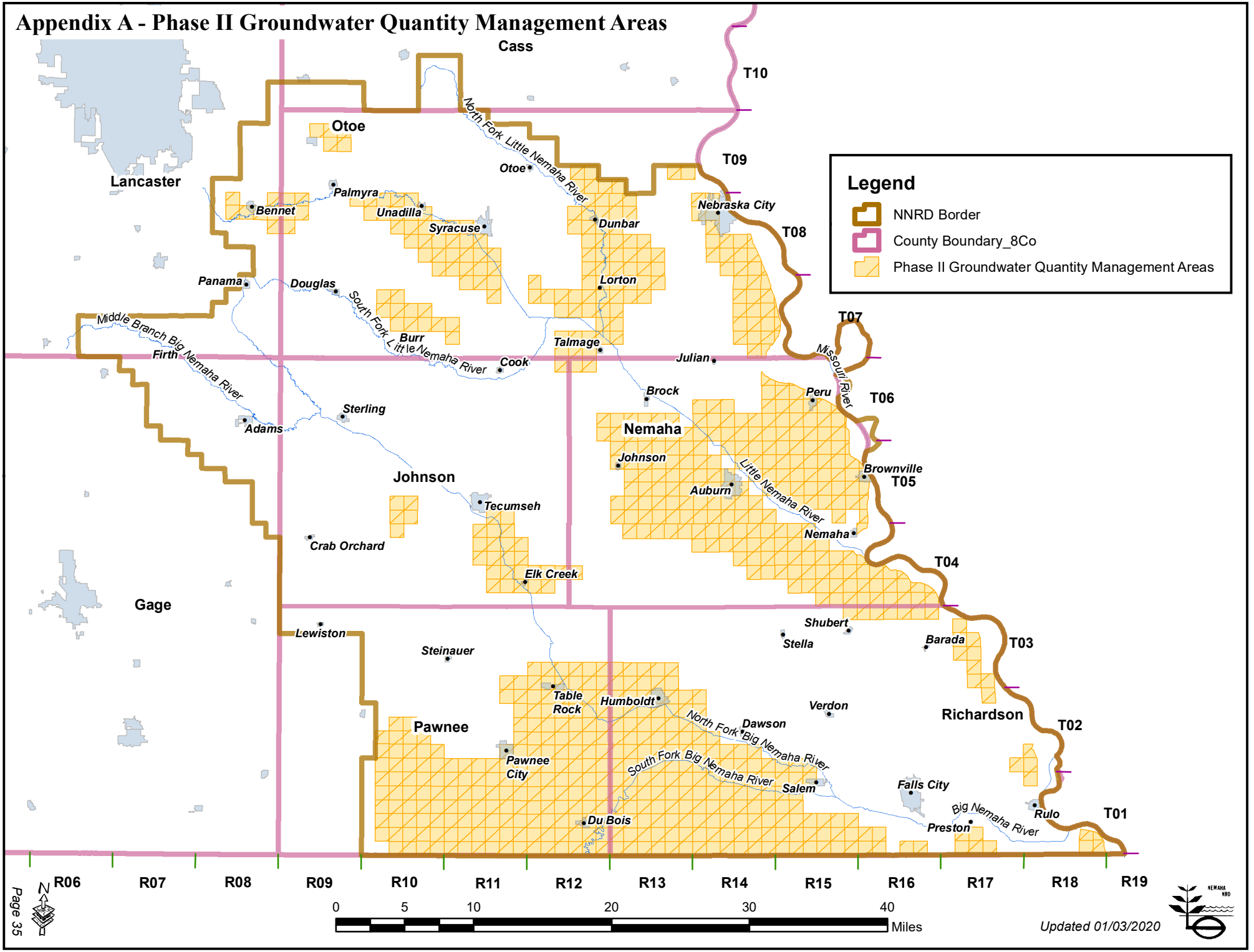
20.1 Well permit applications received for angled or horizontal high capacity wells may be subject to analysis by a consulting engineering firm to determine potential impacts to other groundwater users.

20.1.1. Angled or horizontal high capacity wells cannot extend beyond the vertical property plane of adjacent landowners.

Public Water Supply System Wellhead Protection Areas



Appendix A - Phase II Groundwater Quantity Management Areas



APPENDIX B - LEGAL DESCRIPTION OF THE NEMAHA NRD PHASE II GROUNDWATER QUANTITY MANAGEMENT AREA - ALL OR PORTIONS OF THE FOLLOWING:

SECTION	TOWNSHIP	RANGE
1	1	10
2	1	10
3	1	10
4	1	10
5	1	10
8	1	10
9	1	10
10	1	10
11	1	10
12	1	10
13	1	10
14	1	10
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17	1	10
20	1	10
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35	1	10
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29	1	13
30	1	13
31	1	13
32	1	13
33	1	13
34	1	13

APPENDIX B - LEGAL DESCRIPTION OF THE NEMAHA NRD PHASE II GROUNDWATER QUANTITY MANAGEMENT AREA - ALL OR PORTIONS OF THE FOLLOWING:

SECTION	TOWNSHIP	RANGE
35	1	13
36	1	13
1	1	14
2	1	14
3	1	14
4	1	14
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12	1	14
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22	2	12

APPENDIX B - LEGAL DESCRIPTION OF THE NEMAHA NRD PHASE II GROUNDWATER QUANTITY MANAGEMENT AREA - ALL OR PORTIONS OF THE FOLLOWING:

SECTION	TOWNSHIP	RANGE
23	2	12
24	2	12
25	2	12
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23	2	13
24	2	13
25	2	13
26	2	13
27	2	13
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29	2	13
30	2	13
31	2	13

SECTION	TOWNSHIP	RANGE
32	2	13
33	2	13
34	2	13
35	2	13
36	2	13
6	2	14
7	2	14
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30	3	12
31	3	12
32	3	12
33	3	12
34	3	12
35	3	12
36	3	12

SECTION	TOWNSHIP	RANGE
26	3	13
27	3	13
28	3	13
29	3	13
30	3	13
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32	3	13
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16	4	11
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25	4	11

APPENDIX B - LEGAL DESCRIPTION OF THE NEMAHA NRD PHASE II GROUNDWATER QUANTITY MANAGEMENT AREA - ALL OR PORTIONS OF THE FOLLOWING:

SECTION	TOWNSHIP	RANGE
26	4	11
27	4	11
19	4	12
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17	4	15
18	4	15

SECTION	TOWNSHIP	RANGE
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23	4	15
24	4	15
25	4	15
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1	5	13
2	5	13
3	5	13

SECTION	TOWNSHIP	RANGE
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12	5	14
13	5	14
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17	5	14

APPENDIX B - LEGAL DESCRIPTION OF THE NEMAHA NRD PHASE II GROUNDWATER QUANTITY MANAGEMENT AREA - ALL OR PORTIONS OF THE FOLLOWING:

SECTION	TOWNSHIP	RANGE
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27	5	15

SECTION	TOWNSHIP	RANGE
28	5	15
29	5	15
35	5	15
7	5	16
18	5	16
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35	6	14
36	6	14

SECTION	TOWNSHIP	RANGE
7	6	15
8	6	15
15	6	15
16	6	15
17	6	15
18	6	15
19	6	15
20	6	15
21	6	15
22	6	15
23	6	15
25	6	15
27	6	15
28	6	15
28	6	15
29	6	15
30	6	15
31	6	15
32	6	15
33	6	15
34	6	15
35	6	15
36	6	15
8	7	10
9	7	10
14	7	10
15	7	10
16	7	10
17	7	10
21	7	10
22	7	10
23	7	10
24	7	10
3	7	11
4	7	11
5	7	11
10	7	11
19	7	11
30	7	11
1	7	12
2	7	12
6	7	12
7	7	12

APPENDIX B - LEGAL DESCRIPTION OF THE NEMAHA NRD PHASE II GROUNDWATER QUANTITY MANAGEMENT AREA - ALL OR PORTIONS OF THE FOLLOWING:

SECTION	TOWNSHIP	RANGE
8	7	12
9	7	12
10	7	12
11	7	12
12	7	12
13	7	12
14	7	12
15	7	12
16	7	12
24	7	12
25	7	12
26	7	12
27	7	12
28	7	12
33	7	12
34	7	12
35	7	12
3	7	13
4	7	13
5	7	13
6	7	13
7	7	13
8	7	13
9	7	13
18	7	13
19	7	13
30	7	13
1	7	14
2	7	14
3	7	14
10	7	14
11	7	14
12	7	14
13	7	14
14	7	14
15	7	14
22	7	14
23	7	14
24	7	14
25	7	14
26	7	14
27	7	14
35	7	14
36	7	14

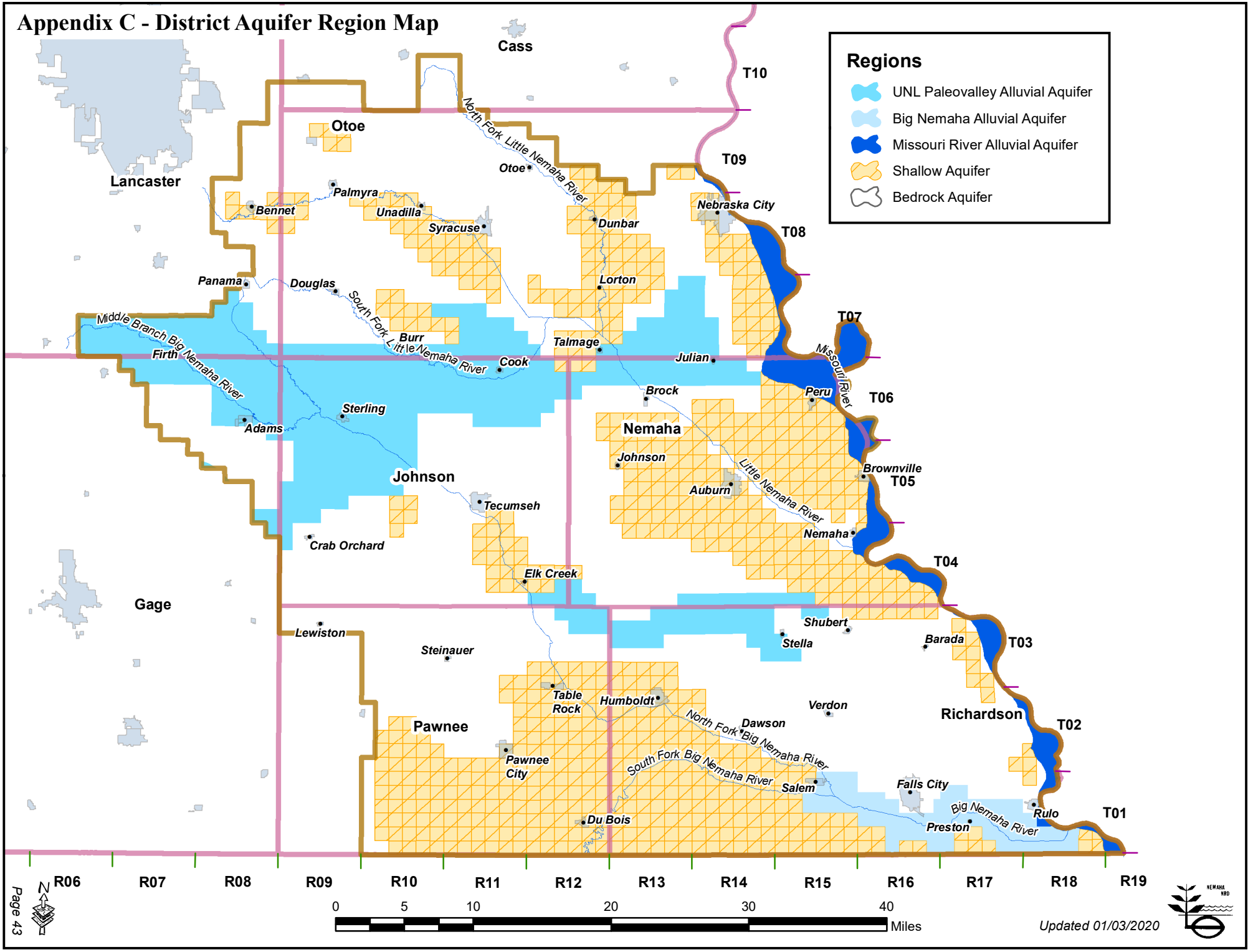
SECTION	TOWNSHIP	RANGE
19	7	15
30	7	15
1	8	8
4	8	8
9	8	8
10	8	8
11	8	8
12	8	8
13	8	8
1	8	9
5	8	9
6	8	9
7	8	9
8	8	9
18	8	9
3	8	10
4	8	10
5	8	10
6	8	10
7	8	10
8	8	10
9	8	10
10	8	10
11	8	10
13	8	10
14	8	10
15	8	10
16	8	10
22	8	10
23	8	10
24	8	10
25	8	10
26	8	10
36	8	10
17	8	11
18	8	11
19	8	11
20	8	11
21	8	11
27	8	11
28	8	11
29	8	11
30	8	11

SECTION	TOWNSHIP	RANGE
31	8	11
32	8	11
33	8	11
34	8	11
1	8	12
2	8	12
10	8	12
11	8	12
12	8	12
13	8	12
14	8	12
15	8	12
23	8	12
24	8	12
25	8	12
26	8	12
35	8	12
36	8	12
5	8	13
6	8	13
7	8	13
8	8	13
18	8	13
19	8	13
20	8	13
21	8	13
27	8	13
28	8	13
29	8	13
30	8	13
31	8	13
32	8	13
33	8	13
34	8	13
5	8	14
6	8	14
7	8	14
8	8	14
17	8	14
20	8	14
21	8	14
22	8	14
23	8	14

APPENDIX B - LEGAL DESCRIPTION OF THE NEMAHA NRD PHASE II GROUNDWATER QUANTITY MANAGEMENT AREA - ALL OR PORTIONS OF THE FOLLOWING:

SECTION	TOWNSHIP	RANGE
26	8	14
27	8	14
28	8	14
29	8	14
33	8	14
34	8	14
35	8	14
36	8	14
9	9	9
10	9	9
11	9	9
14	9	9
15	9	9
26	9	12
27	9	12
34	9	12
35	9	12
36	9	12
25	9	13
26	9	13
31	9	13

Appendix C - District Aquifer Region Map



APPENDIX D – WELL PERMIT RANKING SYSTEM METHODOLOGY

Goal: To continue to allow high capacity well development while limiting impacts, conflicts or interference with neighboring water well users.

The following criteria will be used in the District's Well Permitting Ranking System Methodology:

Main Criteria

1. Thickness of Primary Aquifer Formation
2. Calculated Transmissivity
3. Irrigation Well Density
4. Public Water Supply Well Density
5. Domestic, Livestock & "Other" Well Density
6. Irrigation Method

1. Thickness of Primary Aquifer Formation

a. A minimum of 10 feet of primary aquifer thickness is required for any proposed well to be considered for approval.
b. 1 point shall be awarded for each foot of primary aquifer thickness beginning with 0 points at 10 feet of thickness.
c. Example – 18 feet of aquifer thickness equals 8 points (18ft – 10 ft).
d. Maximum point value of 100.

2. Calculated Transmissivity

a. The testhole geologic log submitted will be reviewed and scored by comparing each log entry to the "Estimated Hydraulic Conductivity from Particle Size Descriptions" table based upon work at the University of Nebraska Conservation and Survey by E.C. Reed and R. Piskin. (see Estimated Hydraulic Conductivity table on page 47).
b. The "Poor" degree of sorting column will be used by default for the hydraulic conductivity values in the transmissivity calculation.
c. The "Moderate" or "High" degree of sorting column will be used for the hydraulic conductivity values in the transmissivity calculation if a sieve analysis is provided indicating a particle-size distribution of sand or gravel with a moderate or high degree of sorting.
d. The hydraulic conductivity value for each geologic entry is then multiplied by the number of feet of thickness of the material as shown in equation (1).
    i. $T = K * b$ (1)

    where T = transmissivity, gpd/ft
    K = hydraulic conductivity, ft/day
    b = saturated thickness, ft
e. The corresponding "T" values for each layer of material are then added together and multiplied by 7.48 gal/ft^3 to get T_{eff}, the effective transmissivity in gallons per day per foot.
f. 1 point shall be awarded for each 1,000 gpd/ft of transmissivity rounded to the nearest integer.

g. Maximum point value of 100.
h. A minimum calculated value of 10,000 gallons per day per foot is required for any proposed well to be considered for approval.

3. Average Weighted Distance

a. The average weighted distance is calculated by multiplying a weight factor by the distance of each existing registered well location from the proposed well that lie within the following distances:

Distance, feet	Weight Factor
500 – 999	6
1,000 – 1,999	5
2,000 – 2,999	4
3,000 – 3,999	3
4,000 – 4,999	2
5,000 – 6,000	1

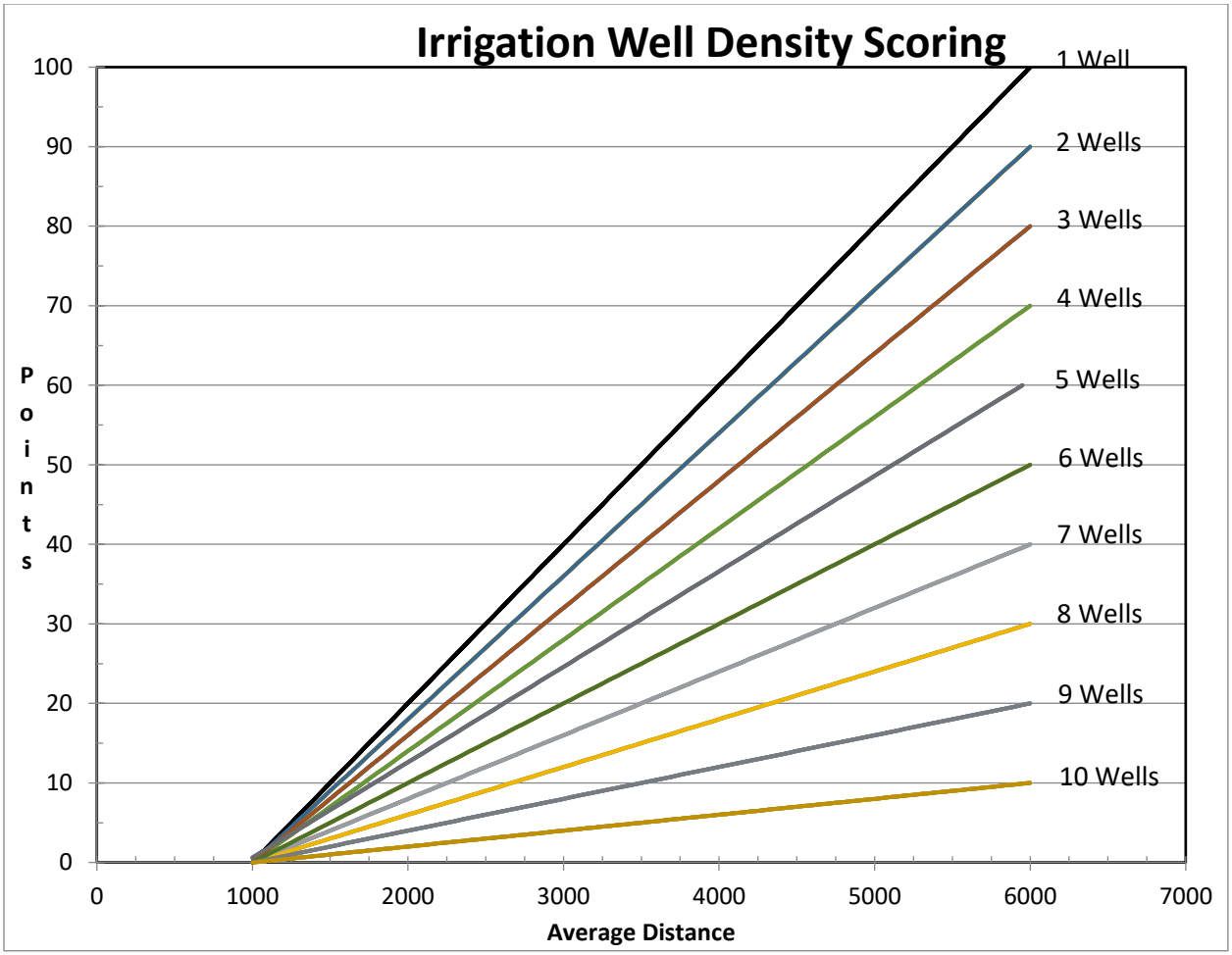
The values are then summed and then divided by the sum of the weight factors. This is the average weighted distance, d, used in the point calculations in equations (2) & (3).

b. Active permitted and registered wells used in the Well Density calculations listed below that are within 6,000 of the testhole location submitted will not be counted when separated by a major perennial river body. The following major perennial river bodies within the District are:
   i. North Fork of the Little Nemaha River
   ii. Little Nemaha River
   iii. South Fork of the Little Nemaha River
   iv. North Fork of the Big Nemaha River
   v. Middle Branch of the Big Nemaha River
   vi. South Fork of the Big Nemaha River
   vii. Big Nemaha River
   viii. Missouri River

4. Irrigation Well Density

a. The irrigation well density is the average weighted distance away from the proposed well in relation to all active permitted or registered irrigation wells located within a 6,000-foot radius.

b. The point value is calculated using the following equation:
   i. $\text{Points} = [\,[\,0.02 - [(n - 1) * (0.002)\,] * d\,] - (22 - (2 * n))\,]$ (2)
   where n = number of irrigation wells
   d = average weighted distance of all irrigation wells within 6,000 feet
   ii. As the number of wells increases the maximum total point value decreases by 10 points for each additional well within the 6,000-foot radius
   iii. Maximum point value of 100 and a minimum value of 0
   iv. A zero-point score for this criterion is automatically assigned for 11 or more neighboring irrigation wells located within the 6,000-foot radius
   v. Graphical representation of Equation (2) shown on following page



5. Public Water Supply Well Density

a. The public water supply well density is the distance away from the proposed well in relation to public supply wells located within a 6,000-foot radius. The point value for 1 to 5 public water supply wells located within a 6,000-foot radius is calculated using the following equation:

i. Points = [[0.01 – [(n – 1) * (0.002)]] * d – (12 – (2 * n))] (3)

where n = number of public water supply wells
d = average weighted distance of all public water supply wells within a 6,000-foot radius

ii. As the number of public water supply wells increases, the maximum total point value decreases by 10 points for each additional well within the 6,000-foot radius

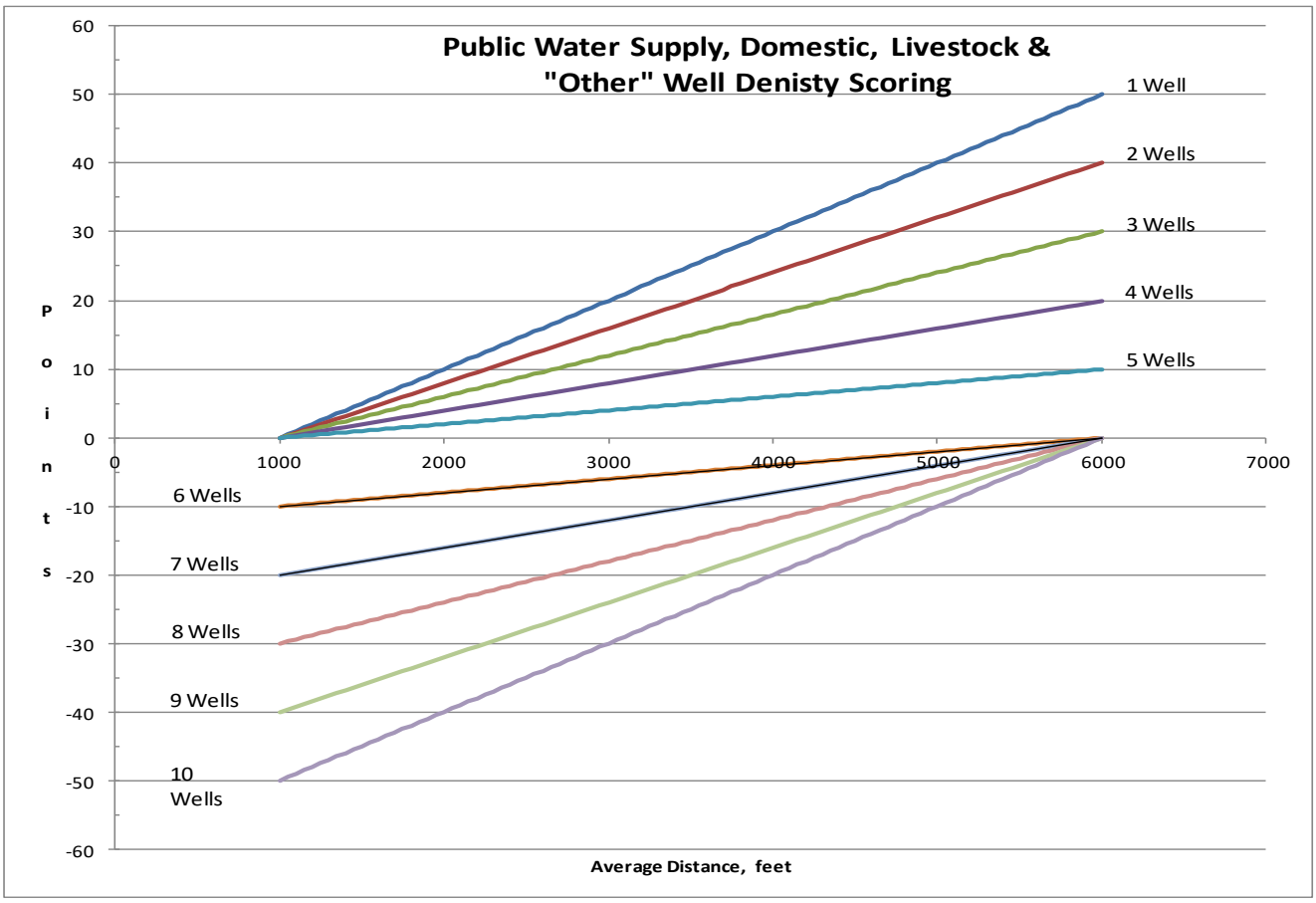
iii. Maximum positive point value of 50

b. The point value for 6 or more public water supply wells located within a 6,000-foot radius is calculated using the following equation:

i. Points = [[0.002 * (n - 5) * (d)] – (12 * (n – 5))] (4)

where n = number of public water supply wells
d = average distance of all public water supply wells within a 6,000-foot radius

ii. Maximum negative point value of 50
iii. Graphical representation of Equations (3) & (4)



6. Domestic, Livestock & "Other" Well Density

a. The domestic, livestock, commercial & "other" well density is also calculated using equations (3) and (4) for the public water supply well density.

7. Irrigation Method

a. Additional ranking system points based upon the irrigation method:
   i. Irrigation Method
      - Gravity -25
      - Pivot/Sprinkler 0
      - Subsurface Drip 25

b. If subsurface drip is indicated as the Irrigation Method and the total Well Permit Ranking System score is between the minimum score for approval and the minimum score for approval plus the points given for subsurface drip then a signed and notarized affidavit will be filed with the corresponding County courthouse indicating subsurface drip will be implemented.

c. If subsurface drip is indicated as the Irrigation Method and the total Well Permit Ranking System score is greater than the sum of the minimum score for approval plus the points given for subsurface drip, then a notarized affidavit is not required.

d. If more than one method of irrigation is to be used, then points will be assigned based the percentage of acres of each method multiplied by the score of each method:
    i. Example – 140 total acres irrigated, 120 pivot and 20 gravity, then the score would equal (120/140) * 0 pts + (20/140) *-25 pts = -4 points

On this page is an example worksheet on how a well permit application will be scored according to the above methodology.

Example Data

Testhole Log

Material			From, ft	To, ft	K, ft/day	T, gpd/ft
Soft black topsoil			0	4		
Loose brown fine sand			4	26		
Loose brown medium sand			26	48		
Stiff blue clay			48	57		
Loose gray very coarse sand	*(Primary*	34 feet	57	73	107	12,806
Loose gray coarse gravel	*Aquifer)*		73	91	334	44,970
Hard rocks & boulders			91	95		
Shale			95	100		

$T_{effective}$ = 57,776 gpd/ft

Ranking System Worksheet

Criteria	Maximum Points	Value	Units	Point Value
1. Thickness of Primary Aquifer Formation	100	34	feet	**24**
2. Transmissivity	100	57,776	gallons per day per foot	**58**
3. Irrigation Well Density	100	3500 3	average distance, feet # of wells	**40**
4. Public Water Supply Well Density	50	4000 1	average distance, feet # of wells	**30**
5. Domestic & Livestock Well Density	50	5250 2	average distance, feet # of wells	**34**
6. Irrigation Best Management Practices				**0**
Gravity	-25			
Pivot/Sprinkler	0	⟸		
Subsurface Drip	25			
Points Possible	425			**186**

Estimated Hydraulic Conductivity from Particle Size Descriptions						
	Degree of Sorting			Silt Content		
Grain Size	**Poor**	**Moderate**	**High**	**Slight**	**Moderate**	**Very**
Clay and silt:						
Clay	0.0			2		
Silt, slightly clayey	1.3			18		
Silt, moderately clayey	2.7			11		
Silt, very clayey				7		
Silt; loess; sandy silt				20		
Sand and gravel						
Very fine sand	13	20	27	23	19	13
Very fine to fine sand	27	27		24	20	13
Very fine to medium sand	36	41-47		32	27	21
Very fine to coarse sand	48			40	31	24
Very fine to very coarse sand	59			51	40	29
Very fine sand to fine gravel	76			67	52	38
Very fine sand to medium gravel	99			80	66	49
Very fine sand to coarse gravel	128			107	86	64
Fine sand	27	40	53	33	27	20
Fine to medium sand	53	67		48	39	30
Fine to coarse sand	58	67-72		53	43	32
Fine to very coarse sand	70			60	47	35
Fine sand to fine gravel	88			74	59	44
Fine sand to medium gravel	114			94	75	57
Fine sand to coarse gravel	145			107	87	72
Medium sand	67	80	94	64	51	40
Medium to coarse sand	74	94		72	57	42
Medium to very coarse sand	84	98-111		71	61	49
Medium sand to fine gravel	103			84	68	52
Medium sand to medium gravel	131			114	82	66
Medium sand to coarse gravel	164			134	108	82
Coarse sand	80	107	134	94	74	53
Coarse to very coarse sand	94	134		94	75	57
Coarse sand to fine gravel	116	136-156		107	88	68
Coarse sand to medium gravel	147			114	94	74
Coarse sand to coarse gravel	184			134	100	92
Very coarse sand	107	147	187	114	94	74
Very coarse sand to fine gravel	134	214		120	104	84
Very coarse sand to medium gravel	170	199-227		147	123	99
Very coarse sand to coarse gravel	207			160	132	104
Gravel						
Fine gravel	160	214	267	227	140	107
Fine to medium gravel	201	334		201	167	134
Fine to coarse gravel	245	289-334		234	189	144
Medium gravel:	241	321	401	241	201	160
Medium to coarse gravel	294	468		294	243	191
Coarse gravel	334	468	602	334	284	234

The table above shows the estimated hydraulic conductivities values from an unpublished and undated paper by E.C. Reed and R. Piskin as it was published in “Hydrogeology of Parts of the Twin Platte and Middle Republican Natural Resources Districts, Southwestern Nebraska” by J. W. Goeke, J. M. Peckenpaugh, R. E. Cady, and J. T. Dugan, Nebraska Water Survey Paper No. 70, April 1992, published through the Conservation and Survey Division, Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln.

Hydraulic Conductivity & Transmissivity

The ability of rocks to transmit water is indicated quantitatively by their hydraulic conductivity and transmissivity. The hydraulic conductivity of a rock is the volume of water that will move in unit time under a unit hydraulic gradient through a unit cross-sectional area of the rock perpendicular to the direction of flow. The transmissivity of an aquifer is the rate at which water is transmitted through a unit width of the aquifer under a unit hydraulic gradient. The transmissivity can be approximated by summing the products of the hydraulic conductivity and thickness for each different lithology that occurs in a section of the aquifer. Transmissivity differs from place to place and can vary with time. Differences in transmissivity in space are related to lateral changes in the thickness of the aquifer and to lateral changes in the textural composition of the sediments comprising the aquifer. As the water table rises or declines, the saturated thickness also changes and thereby causes transmissivity to change with time.

The equivalent hydraulic conductivity values for the transmissivity calculation were estimated based upon work at the University of Nebraska Conservation and Survey Division by E.C Reed and R. Piskin. They assigned permeability values to various unconsolidated materials based on grain size, particle size, degree of sorting and silt content. This work has been used by several authors as the basis for estimating hydraulic conductivity of the sedimentary deposits of Nebraska. Due to the well driller's personal interpretation of particle size descriptions and the District's glaciated aquifer system, the "Poor" Degree of Sorting column of values will be used by default to estimate the hydraulic conductivity, K, values, unless otherwise indicated through sieve analysis.

Therefore, the method used to determine the hydraulic conductivity and transmissivity is as previously stated: each layer(s) of principle aquifer material recorded in the testhole lithologic log is classified and assigned a value for hydraulic conductivity bases upon the table by Reed and Piskin. The hydraulic conductivity is then multiplied by the thickness, in feet, of that material to get a transmissivity value for the layer(s). The sum of the transmissivity of the principle aquifer layer(s) is the effective transmissivity of the aquifer(s) at the testhole location.

REFERENCES

Nebraska Department of Environmental Control – State of Nebraska and Conservation and Survey Division – Institute of Agriculture and Natural Resources, University of Nebraska - Lincoln, 1980, "Configuration of Base of Principal Aquifer, 1979, Lincoln and Nebraska City Quadrangle, Nebraska", Map Scale 1:250,000, 1 sheet.